

Appendix A: Volunteer Primer

A Primer on Rocky Intertidal Monitoring

Version October 2003

Welcome to the Cabrillo National Monument Rocky Intertidal Monitoring Program! By volunteering your time to this project, you are contributing to an important scientific study, as well as doing your part in protecting California's beautiful rocky coast. Thank you, thank you!

I decided to make this "cheat sheet" for two reasons. The first is to give the first-time volunteers something to read in case I am not clear or complete enough while giving instructions on how to sample. The second is to give the veterans a chance to make sure that we are all being consistent during this project (although I expect most of this to be very familiar to you). Since this is a large-scale, long-term, scientific research project with many different participants, it is crucial that everyone is "on the same page" and as consistent as possible.

A lot of the information on this sheet comes directly from the *Rocky Intertidal Resources Monitoring Handbook*, by Jack Engle and Gary Davis. More recently, Jack Engle has begun to write a new protocol for all of the southern California rocky intertidal programs; I have drawn some information from his latest draft. If you would like to have a copy of either document, let me know. And certainly, if you have any questions, PLEASE ASK!

Purpose of the Study:

The purpose of this study is to collect long-term data on the ecological condition of the rocky intertidal of Cabrillo National Monument (CABR). Scientists from UC Santa Barbara and the National Park Service began this study in 1990, based on a similar study being done in the Channel Islands National Park. Sampling has occurred here twice a year ever since. It is part of a much larger study of the rocky intertidal of all of Southern California, coordinated by the Minerals Management Service (MMS). See www.marine.gov for more information about this program.

Survey Sites and Types of Surveys:

The CABR shoreline has been divided into 3 areas—CABR I is the most heavily visited, CABR II receives an intermediate level of visitation, and CABR III has been closed to the public since 1996. Within each area, we will be doing the same number of transects and plots. This allows us to study both the changes of the populations within each area over time, as well as the differences in the areas that receive different amounts of human pressure.

There are 13 key species that this program is designed to monitor (listed in the table below). The four types of study techniques we will use are photoplots, circular plots, line transects, and timed searches. I will explain more about each technique later.

Technique	Organism
Photoplot	Acorn Barnacles
	Pink Thatched Barnacles
	Rockweed (<i>Pelvetia</i>)
	California Mussels
	Goose Barnacles (<i>Pollicipes</i>)
Circular Plot	Owl Limpets (<i>Lottia</i>)

Technique	Organism
Line Transect	Boa Kelp
	Sargassum Weed
	Red Algal Turf
	Surf Grass
	Aggregating Anemones
Timed Search	Black Abalone
	Ochre Sea Stars (<i>Pisaster</i>)

First Day—Site Maintenance:

The first day of sampling is spent locating sites, cleaning them, and marking them with color-coded tape. By doing this in the beginning, less time is wasted looking for bolts during the rest of the week. Each site has two names—one with a letter (M# for mussel photoplots, L# for limpet plots, K# for kelp transects, etc.) and one with just numbers (244, 245, etc.). These are listed on the maps we use. When recording sites, please try to use both numbers, if possible. Redundancy is a good thing—it helps us catch each other's mistakes!

Type of Plot	Letter Code
Owl Limpets (circular plots)	L1, L2, L3, L4, L5
Mussels (photoplots)	M1, M2, M3, M4, M5
Barnacles (photoplots)	B1, B2, B3, B4, B5
Rockweed— <i>Pelvetia</i> (photoplots)	Pe1, Pe2, Pe3, Pe4, Pe5
Goose Barnacles— <i>Pollicipes</i> (photoplots)	Po1, Po2, Po3, Po4, Po5, Po6
Algal Turf (line transects)	T1, T2
Surf Grass (line transects)	G3, G4
Kelp (line transects)	K5, K6

When cleaning off the bolts and putty blobs, it is important that they are as clean as possible. Mussels or owl limpets living on the putty should probably not be removed, but algae and barnacles should be scraped off. Although it seems sad to kill the barnacles that are living on the putty, keep in mind that there are MILLIONS or possibly billions of little barnacles in the world, and killing a handful in the name of protecting the rest is not end of the world. Those of you who have sampled with us more than once have seen how quickly plants and animals can cover our markers—the more we do to maintain these blobs of putty, the better. At the same time, be sure not to compromise the photoplot—don't move or remove things from the center of it before the photo has been taken of it! If you need to move the rockweed to find a bolt, put it back the way it was (ask if this is unclear).

Also in terms of site maintenance, we are trying to repair sites that are missing bolts or putty blobs. While you are looking for sites, please make a note of missing markers. Limpet plots should have a single marker in the center with a bolt. Photoplots should have 4 (at least 3) corners marked, preferably with a bolt in the upper left corner. Line transects should have a bolt on each end and one in the center. Please make a note of any missing or damaged bolts or blobs (even if only one is missing from the corners of a photoplot), and let me know about them. In sum, during site maintenance you should:

1. Locate sites using maps, interplot data, and past experience. OUR BOLTS HAVE HEXAGONAL HEADS.
2. Clean and mark sites—don't be afraid to really clean the putty.

3. Make a note of any missing bolts or putty blobs.
4. Use both site identifiers—the one with a letter, and without one.
5. Try to disturb plots as little as possible while looking for them and marking them.

Photoplots

The concept behind photoplots is that we photograph the exact same square twice a year, and then score the resulting slide later for percentage cover of a variety of organisms. This also allows us to have a permanent archive of the condition of the specific sites.

For the most part, I will be taking the photographs for the photoplots. There are a number of ways that I will need assistance:

1. Stay ahead of the photographer, find the sites, place PVC rectangles on them (oriented the way the markers indicate).
2. A recorder should work with the photographer, taking notes on the content of each frame, checking that the flash worked, marking a sign with the current site number for the photograph.

Owl Limpet Circular Plots

A bolt marks the center of the circle, and a 1 meter piece of string is used to measure a circle. All owl limpets within that circle are measured and their size is recorded. This yields long term size frequency data.

This is best done with three people—one to record, and two more experienced person to measure owl limpets and check each other. Limpets smaller than 15mm are not measured. Once a limpet is measured, it should be marked with a logging crayon so it is not counted twice. It is often useful to have 2 people looking for limpets using different colored chalk—this way you can go back and check each other. Look carefully at the scale of the calipers, since they can differ. Record to the nearest mm.

Identifying the proper species is the most challenging part of this work. If you would like to review species identification, let us know. Don't forget that they love to hide in crevices, on the edges of mussel beds, under overhangs, etc. They can be completely covered in barnacles or algae. Take your time and be thorough. Use a flashlight.

A big question I have had in the past involves the 3-dimensional nature of the rocks we are measuring 2-dimensional circles over. What about lumps, bumps, and holes? Here is an easy way to be sure you are measuring correctly: ***If you can actually touch the tape to the limpet, it is in the circle.*** Making a horizontal circle in the air and projecting it down to the limpet is not correct. Neither is laying the tape along every hole and bump.

In summary, when doing limpet plots remember:

1. Measure limpets (to the nearest mm) that fall within a 1 m circle of the bolts.
2. Mark limpets that have already been measured.
3. Ignore limpets that aren't owl limpets or are smaller than 15mm.
4. Be sure to check crevices, holes, mussel beds, and overhangs for limpets.
5. ***If you can actually touch the tape to the limpet, it is in the circle.***

Line Transects

The purpose of this sampling method is to lay down a tape of a known distance (1000 cm in this case) and to record what is touching the tape every 10 centimeters. This yields percentage cover data.

This should be done with at least 2 people, someone to record and someone who is experienced to read the tape. Care should be taken not to disturb anything on that line before the transect is done. The tape is laid along the transect, starting at the notched bolt on the northern side. One person will “read” the tape, calling out the type of cover and the centimeter mark at which it was measured. We use the centimeter mark as a “point” and we record what is under it. Choose the organism that is on top, unless 1. it is a piece of drift (i.e. not attached to the bottom) or 2. it is obviously an ephemeral species (such as red *Smithora* found on surfgrass). Another exception is when surfgrass is located underneath something, such as a piece of *boa* kelp. In that case, the point is scored as both *boa* kelp and “surfgrass understory”. This means the plot can total to more than 100 points. When the point lands on surfgrass, without anything on top of it, it is scored as “surfgrass overstory”. We do this only for surfgrass.

In sum:

1. Start the transect on the northern end of the line.
2. Read and record the organism lying under the point marked every 10 centimeters.
3. Score the organism on top, unless it is ephemeral. Score surfgrass as understory when it is beneath something else.

Timed Searches

All of the methods I’ve described so far involve counting organisms, and standardizing the amount of effort used to find those organisms. This is usually done by limiting the SPACE of searching (e.g. a 10 m line, a 1 m radius circle). The timed search method limits the amount of TIME spent searching. The animals we are looking for (abalone and sea stars) are rare or absent from the park, therefore if we marked a small circle to look for them, we wouldn’t find any! Instead, we can look anywhere, but we limit ourselves to 30 minutes for one person (or 15 minutes for 2 people, or 10 minutes for 3 people). This is done once in each zone.

Limit the area in which you will search. Generally, search in the following areas:

Zone I: in the boulder field just north of the entrance path

Zone II: in the boulder field near all of the mussel plots

Zone III: 15 minutes in the boulder field and 15 minutes in the flat area, as far out as is possible

Look for all of the species listed on the logsheet. Be very careful to look in cracks and crevices, where most of these species tend to live. Record the general area searched on the logsheet.

General Instructions

1. Be thorough and precise. Don’t be afraid to be redundant when recording data.
2. If you don’t know something, ask!
3. Have fun!

Appendix B: Standard email sent to volunteers to prepare them for Tidepool monitoring

What is tidepool monitoring and what do I need to know?

What is tidepool monitoring?

Since 1990, we have gone out every spring and fall to monitor the "health" of the Cabrillo tidepools. We use various techniques, including photoplots, line transects, measuring individuals, and timed searches, in order to track changes in key populations over time. This program has always been carried out mostly by volunteers. We provide the training you need and will explain more of the details in an orientation session on your first day.

How much commitment do I need to make?

Before you can start volunteering, you need to attend a new volunteer orientation meeting. Please let me know if you need your orientation and I will be sure to make arrangements for you.

If you can only come for one day, you are still welcome to come and learn (especially friends and visitors of more regular monitors, and SIO CHIPS members). However, you become much more valuable to us the more often you come. On your second day, you will understand more of what we are doing, and will probably get more out of the experience. Same is true of the third, and so on.

We do this twice per year, so if you can only come for one day but will be joining us again, that's great too.

If you can come for part of a day (and it is not the only day you are coming, ever), we can work around your schedule. This happens quite often, and we've been able to accommodate. Please let me know ahead of time so I can account for it. If you will only be joining us for two hours TOTAL, this year or otherwise, then it is probably best that you skip monitoring and just come down to the park as a visitor. Exceptions are friends or visitors of more regular monitors who are "along for the ride".

If you aren't sure when you can help, you can always show up that day. It is MUCH easier for me, however, if you can predict when you will be here. If you didn't RSVP for a given date and there is a change, I might not track you down to let you know.

If you said you can make it, but you can't, PLEASE LET ME KNOW BY PHONE (619-523-4582) as soon as you know.

We DO monitor in rainy weather, so unless you hear from me, assume we are ON. In rare cases, I have had to cancel due to large storm surge or lightening (and once due to ashes falling from the sky). If you are unsure, call me.

What should I wear?

Please dress appropriately for tidepool work. This means solid, non-slip shoes that can get wet. I prefer the "water shoes" or dive booties, but a range of footwear will work. Tevas are popular (although I tend to cut up my feet, you can wear fashionable socks), as are old

sneakers. The tall rubber boots are also very popular, but they can get flooded in some cases. Do not wear your favorite hiking boots, as they are likely to get filled with saltwater.

Your clothing should be comfortable and should be items you are willing to get dirty and/or wet. I prefer not to wear shorts (again, I'm a klutz, so I tend to get cut up on barnacles, others don't seem to have that problem). Some like to wear wetsuits, but they can be quite warm. When not in uniform, I like to wear "quick dry" pants.

Be sure to dress for the weather, assuming that things might be slightly different on the coast. Layers are always the best strategy.

What should I bring?

A field pack will be handy. We will supply sunscreen (if you don't have a particular preference), some snacks, and some bottled water. We will not have access to a place to buy snacks or lunch, so plan accordingly.

A hat is probably a good idea, to avoid too much sun on your face. It also helps with annoying wind if you have long hair (speaking from experience).

Any treats or baked goods that you'd like to share with the group will be greeted with appreciation and adoration.

Bring a sense of fun, adventure, patience, etc.

How do I get there?

We meet in the tidepool parking lot.

DIRECTIONS TO TIDEPOOLS

From the North:

- From southbound I-5, exit at Rosecrans Street
- The exit will merge onto Rosecrans going the right direction (no turns)
- See the rest of the directions

From the South:

- From northbound I-5, exit at Pacific Highway N
- Stay on PCH for ~1.8 miles
- Bear LEFT onto Kurtz Street. Stay on Kurtz for a few blocks (~0.3 miles). The next big intersection is Rosecrans
- Take a LEFT onto Rosecrans Street
- See the rest of the directions

From the East:

- Take 8 west, follow the exit for I-5N/Rosecrans Street
- Follow the sign onto Rosecrans Street. The exit will merge onto Rosecrans going the right direction (no turns)

-See the rest of the directions

Rest of the directions

-Stay on Rosecrans for ~2.6 miles. When you see West Marine on your right you are getting close to the next turn.

-Turn RIGHT on Cañon Street

-Stay on Cañon until it ends (<1 mile)

-Turn LEFT on Catalina Boulevard

-Keep going straight. You will drive through a Navy guardhouse that will likely be empty. The road becomes Cabrillo Memorial Drive, but you keep going straight for ~3 miles. When you pass the cemetery, you are getting close to the next turn.

-You will get to our new entrance station. Tell the ranger you are a tidepool volunteer and they will let you through for free.

-Turn RIGHT onto Cabrillo Road. There should be a sign saying "Cabrillo Tidepools". If you get to the park visitor's center, you've gone too far.

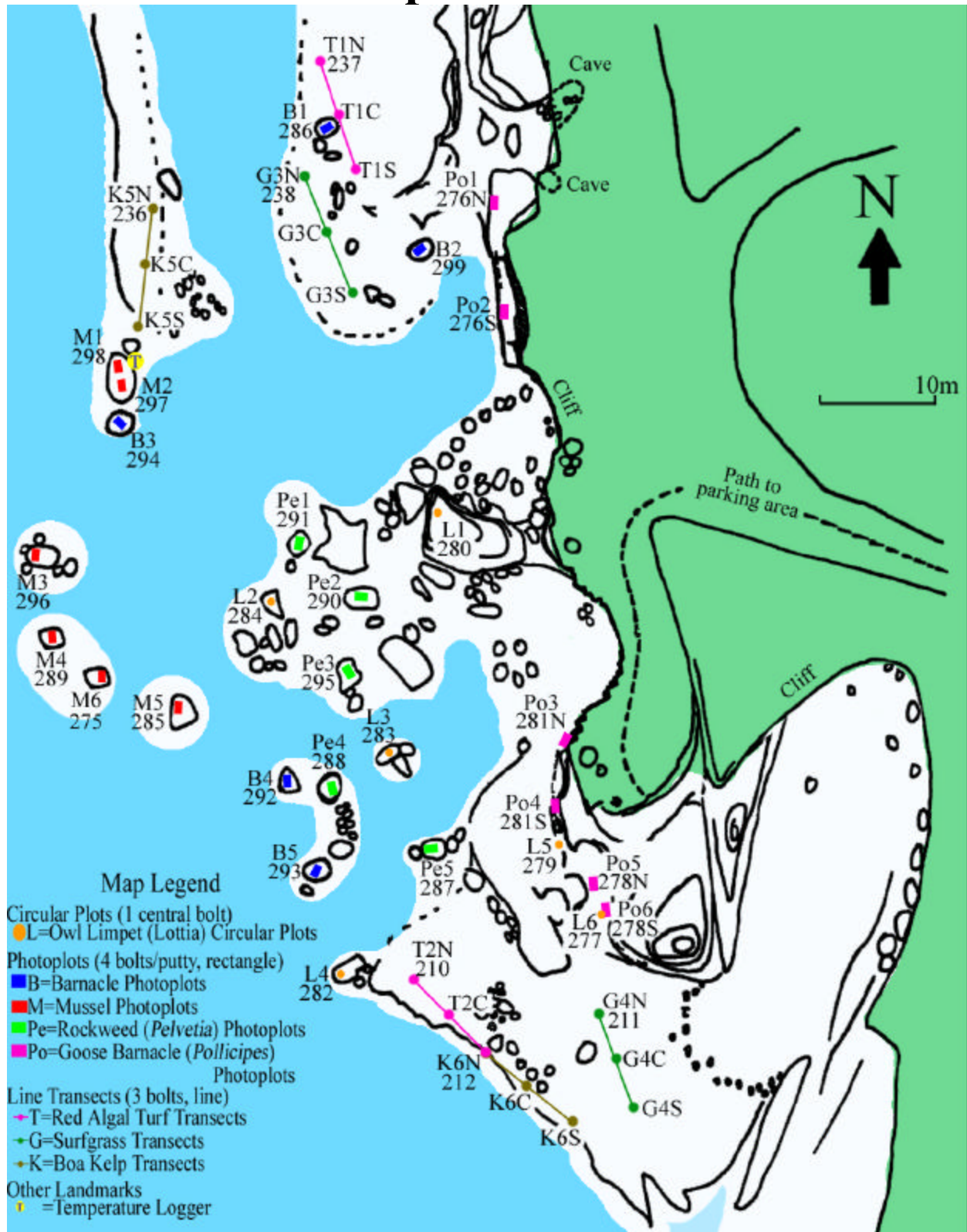
-Go down the hill, there will be a hairpin turn (the road becomes Gatchell Road), keep following the same road.

-Straight ahead of you is a parking lot, when the road bears to the right, stay straight and park.

-Look for a collection of people, gathering near our division truck, a silver pickup.

Appendix C: Plot Finding Guide

Map of Zone I



SITE LOCATIONS (Zone I)								
Plot	Site	Type	Target Species	Bolt	Lat. (°N)	Long. (°W)	Std. Dev.	Tidal Height (in above MLLW)
L1	280	Circular Plot	Owl Limpets		32.669477	-117.245499	n/a	61.47
L2	284	Circular Plot	Owl Limpets		32.669396	-117.245625	0.099864	52.22
L3	283	Circular Plot	Owl Limpets		32.669262	-117.245514	0.235812	51.22
L4	282	Circular Plot	Owl Limpets		32.66911	-117.245449	0.092904	65.22
L5	279	Circular Plot	Owl Limpets		32.669154	-117.24528	0.100069	56.72
L6	277	Circular Plot	Owl Limpets		32.669113	-117.245213	n/a	48.22
B1	286	Photoplot	Barnacles		32.669721	-117.245609	0.135574	30.47
B2	299	Photoplot	Barnacles		32.669621	-117.245614	0.116806	38.22
B3	294	Photoplot	Barnacles		32.669486	-117.245829	n/a	28.97
B4	292	Photoplot	Barnacles		32.669211	-117.245595	0.223629	27.72
B5	293	Photoplot	Barnacles		32.669166	-117.245532	0.067995	29.47
M1	298	Photoplot	Mussels		32.669525	-117.245838	n/a	38.47
M2	297	Photoplot	Mussels		32.669516	-117.245832	n/a	27.47
M3	296	Photoplot	Mussels		32.669365	-117.245836	n/a	25.97
M4	289	Photoplot	Mussels		32.669308	-117.245801	n/a	18.47
M5	285	Photoplot	Mussels		32.669291	-117.245657	n/a	31.22
M6	275	Photoplot	Mussels		32.66938	-117.245766	ND	15.88
Pe1	291	Photoplot	Rockweed		32.669444	-117.245619	0.150569	20.72
Pe2	290	Photoplot	Rockweed		32.669396	-117.245541	0.073069	31.72
Pe3	295	Photoplot	Rockweed		32.669334	-117.245551	0.110047	18.97
Pe4	288	Photoplot	Rockweed		32.669228	-117.245549	0.223704	24.47
Pe5	287	Photoplot	Rockweed		32.669194	-117.245424	0.133229	38.47
Po1	276N	Photoplot	Goose Barnacles		32.669617	-117.245517	0.121877	53.22
Po2	276C	Photoplot	Goose Barnacles		32.669573	-117.245522	0.521161	55.72
Po3	281N	Photoplot	Goose Barnacles		32.669293	-117.245373	0.170371	64.22
Po4	281S	Photoplot	Goose Barnacles		32.669219	-117.245355	0.139746	16.22
Po5	278N	Photoplot	Goose Barnacles		32.669139	-117.245216	0.112053	54.22
Po6	278S	Photoplot	Goose Barnacles		32.669116	-117.245204	0.098488	56.97
T1	237	Line Transect	Red Algal Turf	N	32.669761	-117.245583	0.304793	23.22
				C	32.669714	-117.245587	0.278975	ND
				S	32.66967	-117.24559	0.199365	19.22
T2	210	Line Transect	Red Algal Turf	N	32.669095	-117.245395	0.095701	14.47
				C	32.669055	-117.245368	0.131361	ND
				S	32.669022	-117.245342	0.189513	8.22
G3	238	Line Transect	Surfgrass	N	32.669669	-117.245651	n/a	14.97
				C	32.669628	-117.245635	n/a	ND
				S	32.669584	-117.245619	n/a	14.97
G4	211	Line Transect	Surfgrass	N	32.669037	-117.245238	n/a	-2.21
				C	32.668999	-117.245228	n/a	ND
				S	32.668959	-117.245217	n/a	10.22
K5	236	Line Transect	Boa Kelp	N	32.669636	-117.245798	n/a	3.22
				C	32.669591	-117.245809	n/a	ND
				S	32.669547	-117.245819	n/a	0.47
K6	212	Line Transect	Boa Kelp	N	32.669022	-117.245342	0.189513	8.22
				C	32.668985	-117.245312	n/a	ND
				S	32.66895	-117.245279	n/a	6.47

Last Update: Jun-06

Interplot Measurements

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
1.1	280	1.2	284	14.70	60
1.1	280	Pe1	291	13.50	85
1.1	280	Pe2	290	7.90	40
1.1	280	Pe2	276S	10.45	150
1.2	284	1.1	280	14.70	240
1.2	284	M3	296	21.05	100
1.2	284	M4	289	20.50	85
1.2	284	M5	285	13.55	35
1.2	284	M6	275	15.00	60
1.2	284	Pe1	291	5.90	190
1.2	284	Pe2	290	7.27	270
1.2	284	T1S	237S	31.13	173
1.2	284	G3N	238N	32.31	166
1.2	284	K5S	236S	29.41	134
1.3	283	Pe3	295	8.95	145
1.3	283	Pe4	288	5.82	35
1.3	283	Pe5(11L)	287	10.10	300
1.3	283	Pe3	281N	15.80	250
1.3	283	T2N	210N	21.22	317
1.4	282	B5	293	9.55	180
1.4	282	Pe3	295	27.47	175
1.4	282	Pe5(11L)	287	10.60	178
1.4	282	T2N	210N	5.24	272
1.4	282	T2C	210C	10.20	290
1.4	282	T2S	210S	14.80	300
1.4	282	G4N	211N	23.17	280
1.4	282	G4S	211S	28.85	295
1.4	282	K6N	212N	14.80	300
1.4	282	K6S	212S	24.27	302
1.5	279	1.6	277	8.08	300
1.5	279	Pe5(11L)	287	14.77	100
1.5	279	Pe4	281S	9.25	122
1.5	279	Pe5	278N	6.00	275
1.5	279	T2N	210N	12.52	44
1.5	279	T2C	210C	13.38	25
1.5	279	T2S	210S	15.77	5
1.5	279	G4N	211N	14.58	324
1.5	279	G4S	211S	24.21	330
1.5	279	K6N	212N	15.77	5
1.6	277	1.5	279	8.08	120
1.6	277	Pe5	278N	3.10	155
1.6	277	Pe6	278S	0.76	205
1.6	277	T2N	210N	17.45	66
1.6	277	T2C	210C	15.79	54
1.6	277	T2S	210S	15.66	35
1.6	277	G4N	211N	8.77	351
1.6	277	G4S	211S	18.52	346
1.6	277	K6N	212N	15.66	35
1.6	277	K6S	212S	19.10	360

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
B1	286	B2	299	10.73	360
B1	286	M1	298	23.76	60
B1(1.R)	286	T1N	237N	5.88	199
B1(1.R)	286	T1S	237S	5.49	320
B1(1.R)	286	G3N	238N	4.15	13
B1	286	G3C	238C	9.1	360
B1(1.R)	286	K5N	236N	15.20	71
B2	299	B1	286	10.73	180
B2	299	M1	298	18.65	80
B2	299	Pe1	291	19.45	360
B2	299	Pe1	276N	9.05	260
B2	299	Pe2	276S	14.70	305
B2(1.L)	299	T1S	237S	5.55	188
B2(1.L)	299	G3N	238N	6.75	147
B2	299	G3C	238C	2.63	120
B2	299	G3S	238S	3.55	10
B3	294	M2	297	3.28	180
B3	294	M3	296	14.20	45
B3	294	Pe1	291	19.40	310
B4	292	M5	285	13.30	130
B4	292	Pe3	295	13.55	185
B4	292	Pe4	288	3.78	270
B5	293	1.4	282	9.55	360
B5	293	Pe4	288	7.68	180
B5	293	Pe5	287	10.30	270
M1	298	B1	286	23.76	240
M1	298	B2	299	18.65	260
M1	298	M2	297	0.80	360
M1(11L)	298	K5N	236N	13.52	176
M1(11L)	298	K5S	236S	3.64	171
M2	297	B3	294	3.28	360
M2	297	M1	298	0.80	180
M2	297	Pe1	291	22.40	320
M3	296	1.2	284	21.05	280
M3	296	B3	294	14.20	225
M3(1UR)	296	M4(11L)	289	6.37	340
M3(1UR)	296	M5(1.L)	285	19.55	308
M4	289	1.2	284	20.50	265
M4(11L)	289	M3(1UR)	296	6.37	160
M4	289	M5	285	14.60	295
M4	289	M6	275	7.95	310
M4	289	Pe3	295	26.55	290
M5	285	1.2	284	13.55	215
M5	285	B4	292	13.30	310
M5(1.L)	285	M3(1UR)	296	19.55	128
M5	285	M4	289	14.60	115
M5	285	M6	275	7.61	139
M5	285	Pe3	295	14.95	270
M6	275	1.2	284	15.00	240
M6	275	M4	289	7.95	130
M6	275	M5	285	7.61	319

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
Pe1	291	1.1	280	13.50	265
Pe1	291	1.2	284	5.90	10
Pe1	291	B2	299	19.45	180
Pe1	291	B3	294	19.40	130
Pe1	291	M2	297	22.40	140
Pe1	291	Pe2	290	6.50	310
Pe2	290	1.1	280	7.90	220
Pe2	290	1.2	284	7.27	90
Pe2	290	Pe1	291	6.50	130
Pe2	290	Pe3	295	7.00	5
Pe3	295	1.3	283	8.95	325
Pe3	295	1.4	282	27.47	355
Pe3	295	B4	292	13.55	5
Pe3	295	M4	289	26.55	110
Pe3	295	M5	285	14.95	90
Pe3	295	Pe2	290	7.00	185
Pe3	295	Pe4	288	11.20	360
Pe4	288	1.3	283	5.82	215
Pe4	288	B4	292	3.78	90
Pe4	288	B5	293	7.68	360
Pe4	288	Pe3	295	11.20	180
Pe5(11L)	287	1.3	283	10.10	120
Pe5(11L)	287	1.4	282	10.60	358
Pe5(11L)	287	1.5	279	14.77	280
Pe5	287	B5	293	10.30	90
Pe5	287	Pe3	281N	12.42	205
Pe5(11L)	287	Pe4	281S	7.06	250
Pe5(1.L)	287	T2N	210N	11.21	331
Pe1	276N	B2	299	9.05	80
Pe1	276N	Pe2	276S	10.17	345
Pe1(1.L)	276N	T1N	237N	17.43	145
Pe1(1.L)	276N	T1S	237S	9.32	119
Pe1(1.L)	276N	G3N	238N	13.30	111
Pe1	276N	G3S	238S	10.70	55
Pe2	276C	1.1	280	10.45	330
Pe2	276C	B2	299	14.70	125
Pe2	276C	Pe1	276N	10.17	165
Pe2	276C	G3S	238S	13.60	110
Pe3	281N	1.3	283	15.80	70
Pe3	281N	Pe5	287	12.42	25
Pe3	281N	Pe4	281S	9.90	360
Pe4	281S	1.5	279	9.25	302
Pe4	281S	Pe5(11L)	287	7.06	70
Pe4	281S	Pe3	281N	9.90	180
Pe4	281S	Pe5	278N	6.03	340
Pe5	278N	1.5	279	6.00	95
Pe5	278N	1.6	277	3.10	335
Pe5	278N	Pe4	281S	6.03	160
Pe5	278N	Pe6	278S	2.87	335
Pe6	278S	1.6	277	0.76	25
Pe6	278S	Pe5	278N	2.87	155
Pe6	278S	G4N	211N	7.50	35

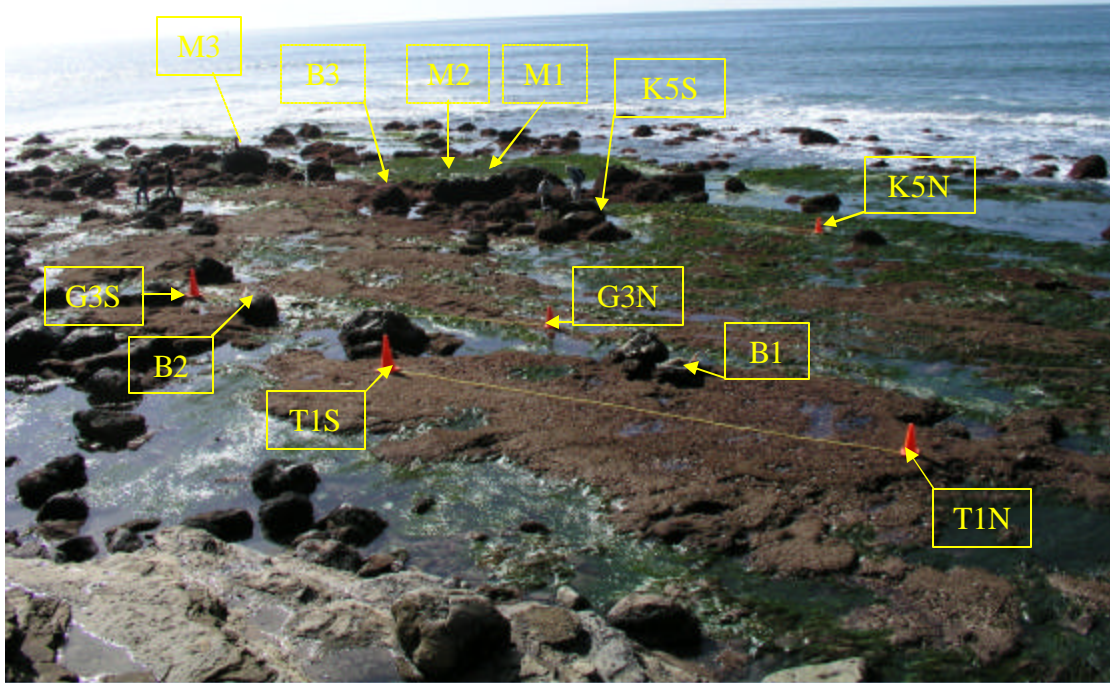
Interplot Measurements

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
T1N	237N	B1(LR)	286	5.88	19
T1N	237N	Po1(LL)	276N	17.43	325
T1N	237N	T1C	237C	5.02	350
T1N	237N	T1S	237S	10.06	351
T1N	237N	G3N	238N	9.93	16
T1N	237N	G3S	238S	19.20	350
T1N	237N	K5N	236N	19.21	58
T1N	237N	K5S	236S	25.50	36
T1C	237C	T1N	237N	5.02	170
T1C	237C	G3N	238N	5.97	40
T1S	237S	L2	284	31.13	353
T1S	237S	B1(LR)	286	5.49	140
T1S	237S	B2(LL)	299	5.55	8
T1S	237S	Po1(LL)	276N	9.32	299
T1S	237S	T1N	237N	10.06	171
T1S	237S	G3N	238N	4.40	92
T1S	237S	G3C	238C	5.38	30
T1S	237S	G3S	238S	9.40	10
T2N	210N	L3	283	21.22	137
T2N	210N	L4	282	5.24	92
T2N	210N	L5	279	12.52	224
T2N	210N	L6	277	17.45	246
T2N	210N	Pe5(LL)	287	11.21	151
T2N	210N	T2S	210S	9.81	316
T2N	210N	G4N	211N	17.86	280
T2N	210N	G4S	211S	24.15	301
T2N	210N	K6N	212N	9.81	316
T2C	210C	L4	282	10.20	110
T2C	210C	L5	279	13.38	205
T2C	210C	L6	277	15.79	234
T2C	210C	T2S	210S	4.85	316
T2C	210C	K6N	212N	4.85	316
T2S	210S	L4	282	14.80	120
T2S	210S	L5	212S	15.77	185
T2S	210S	L6	277	15.66	215
T2S	210S	T2N	210N	9.81	136
T2S	210S	T2C	210C	4.85	136
T2S	210S	G4N	211N	11.27	250
T2S	210S	G4S	211S	14.79	293
T2S	210S	K6C	212C	6.29	310
T2S	210S	K6S	212S	10.19	311

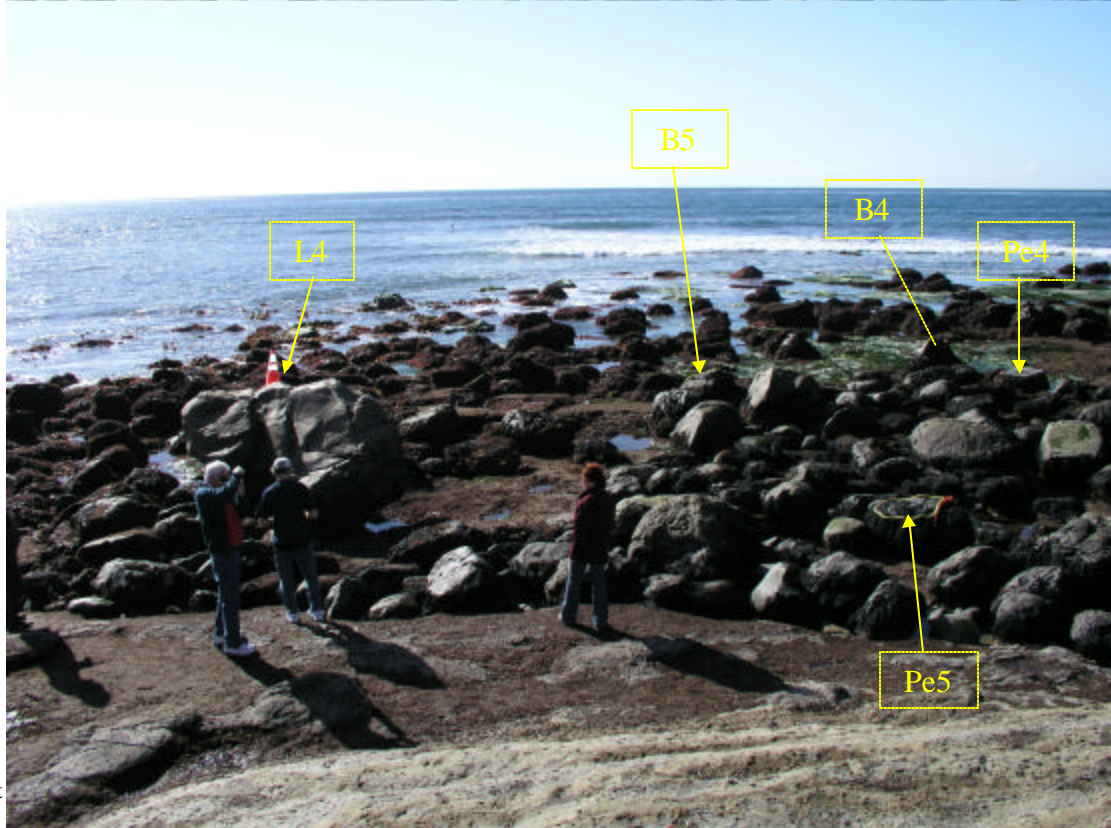
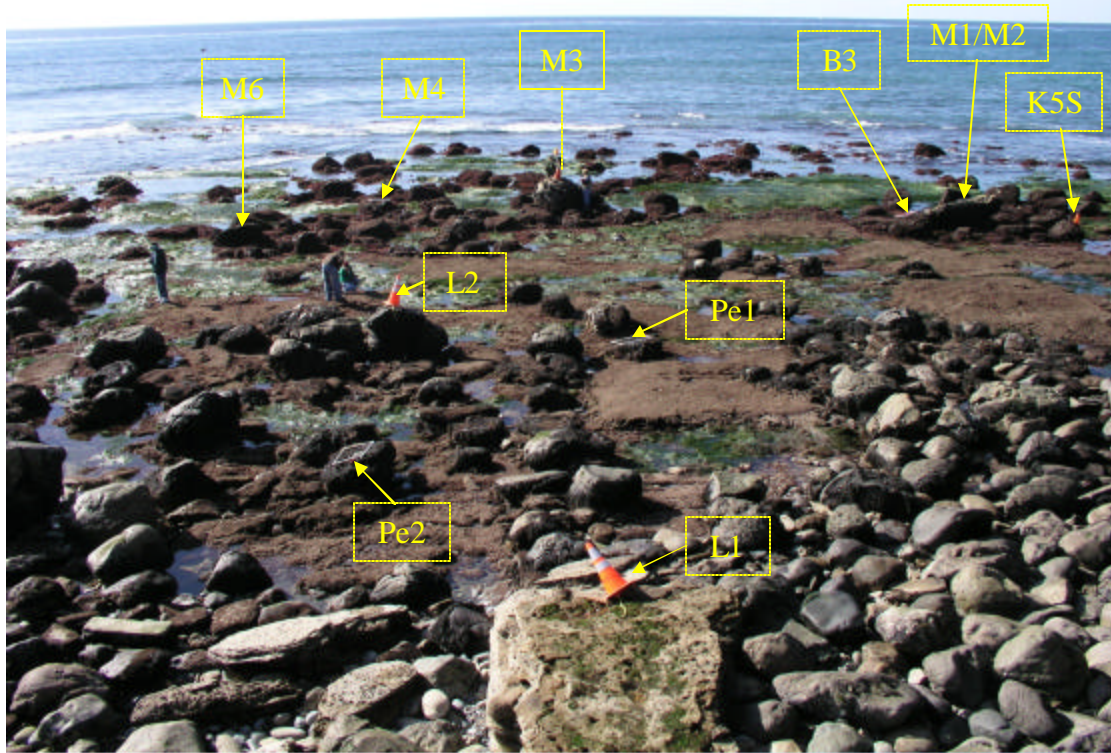
TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
G3N	238N	L2	284	32.31	346
G3N	238N	B1(LR)	286	4.15	193
G3N	238N	B2(LL)	299	6.75	327
G3N	238N	Po1(LL)	276N	13.30	291
G3N	238N	T1N	237N	9.93	196
G3N	238N	T1C	237C	5.97	220
G3N	238N	T1S	237S	4.40	272
G3N	238N	G3C	238C	4.99	345
G3N	238N	G3S	238S	10.10	341
G3N	238N	K5N	236N	13.43	88
G3N	238N	K5S	236S	16.95	50
G3C	238C	B1	286	~9.1	180
G3C	238C	B2	299	2.63	300
G3C	238C	T1S	237S	5.38	210
G3C	238C	G3N	238N	4.99	165
G3C	238C	G3S	238S	5.11	161
G3S	238S	B2	299	3.55	190
G3S	238S	Po1	276N	10.70	235
G3S	238S	Po2	276S	13.60	290
G3S	238S	T1N	237N	19.20	170
G3S	238S	T1S	237S	9.40	190
G3S	238S	G3N	238N	10.10	161
G3S	238S	G3C	238C	5.11	341
G3S	238S	K5N	236N	18.85	119
G3S	238S	K5C	236C	16.79	100
G3S	238S	K5S	236S	16.26	86
G4N	211N	L4	282	23.17	100
G4N	211N	L5	279	14.58	144
G4N	211N	L6	277	8.77	171
G4N	211N	Po6	278S	7.50	215
G4N	211N	T2N	210N	17.86	100
G4N	211N	T2S	210S	11.27	70
G4N	211N	G4C	211C	5.95	345
G4N	211N	G4S	211S	9.95	343
G4N	211N	K6N	212N	11.27	70
G4N	211N	K6S	212S	10.60	15
G4C	211C	G4N	211N	5.95	165
G4C	211C	K6S	212S	6.28	45
G4S	211S	L4	282	28.85	115
G4S	211S	L5	279	24.21	150
G4S	211S	L6	277	18.52	166
G4S	211S	T2N	210N	24.15	121
G4S	211S	T2S	210S	14.79	113
G4S	211S	G4N	211N	9.95	163
G4S	211S	K6N	212N	14.79	113
G4S	211S	K6C	212C	9.18	95
G4S	211S	K6S	212S	5.77	81

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
K5N	236N	B1(LR)	286	15.20	251
K5N	236N	M1(UL)	298	13.52	356
K5N	236N	T1N	237N	19.21	238
K5N	236N	G3N	238N	13.43	268
K5N	236N	G3S	238S	18.85	299
K5N	236N	K5C	236C	5.03	355
K5N	236N	K5S	236S	9.93	357
K5C	236C	G3S	238S	16.79	280
K5C	236C	K5N	236N	5.03	175
K5S	236S	L2	284	29.41	314
K5S	236S	M1(UL)	298	3.64	351
K5S	236S	T1N	237	25.50	216
K5S	236S	G3N	238N	16.95	230
K5S	236S	G3S	238S	16.26	266
K5S	236S	K5N	236N	9.93	177
K6N	212N	L4	282	14.80	120
K6N	212N	L5	212S	15.77	185
K6N	212N	L6	277	15.66	35
K6N	212N	T2N	210N	9.81	136
K6N	212N	T2C	210C	4.85	136
K6N	212N	G4N	211N	11.27	250
K6N	212N	G4S	211S	14.79	293
K6N	212N	K6C	212C	6.29	310
K6N	212N	K6S	212S	10.19	311
K6C	212C	T2S	210S	6.29	130
K6C	212C	G4S	211S	9.18	275
K6C	212C	K6N	212N	6.29	130
K6S	212S	L4	282	24.27	122
K6S	212S	L6	277	19.10	180
K6S	212S	T2S	210S	10.19	131
K6S	212S	G4N	211N	10.60	195
K6S	212S	G4C	211C	6.28	225
K6S	212S	G4S	211S	5.77	261
K6S	212S	K6N	212N	10.19	131

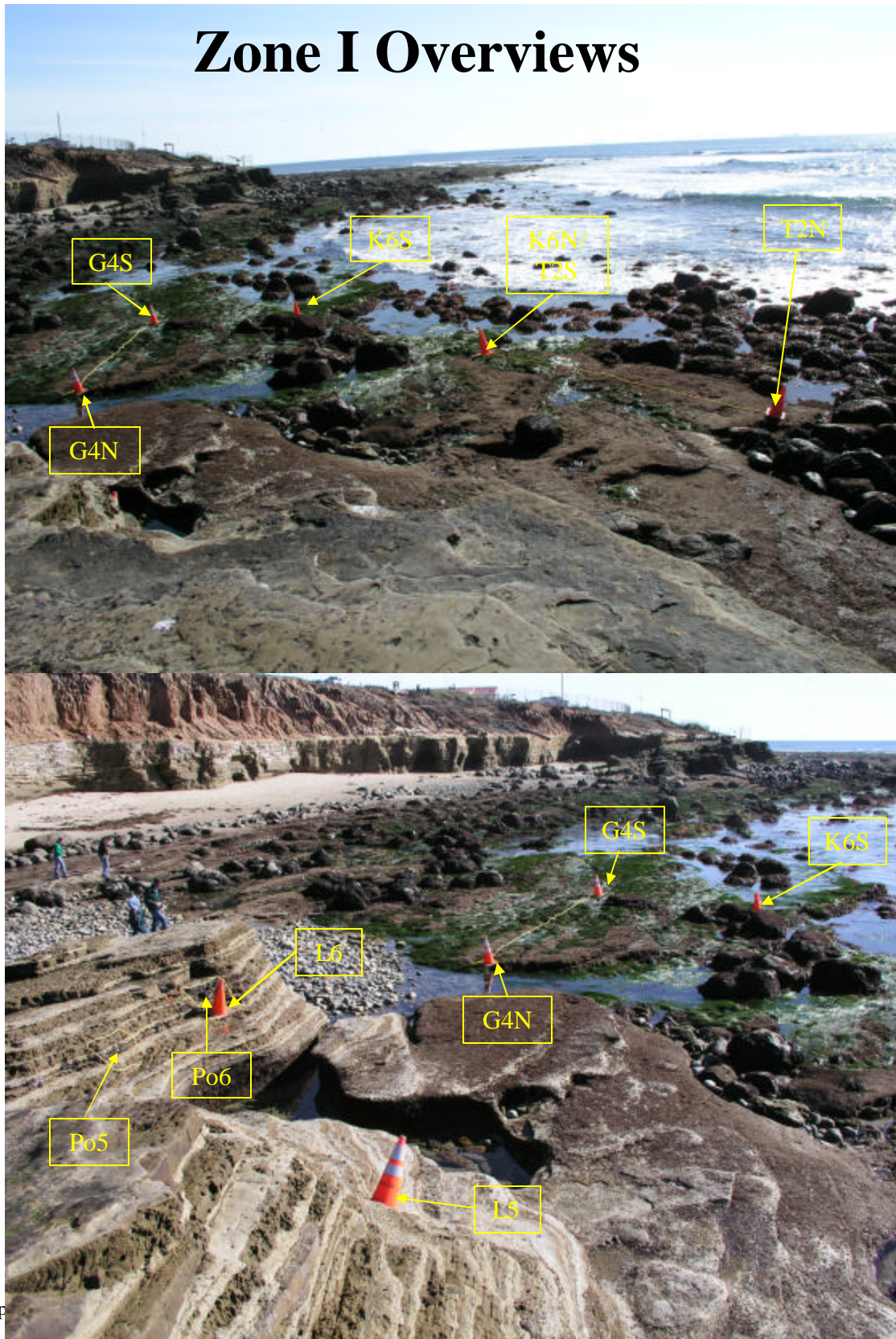
Zone I Overviews



Zone I Overviews



Zone I Overviews

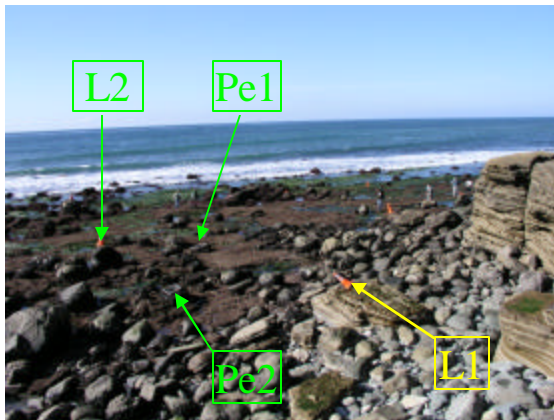


L1 (280)

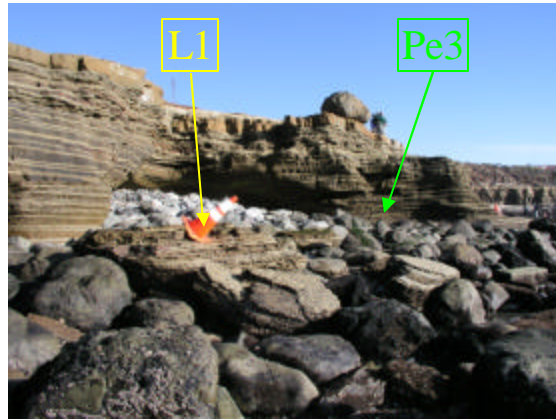
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.669477°N 117.245499°W
Height	61.47 in.

Description: On a pretty big mesa, a slanted flat sandstone platform. A short stainless bolt on top of ocean side of mesa.

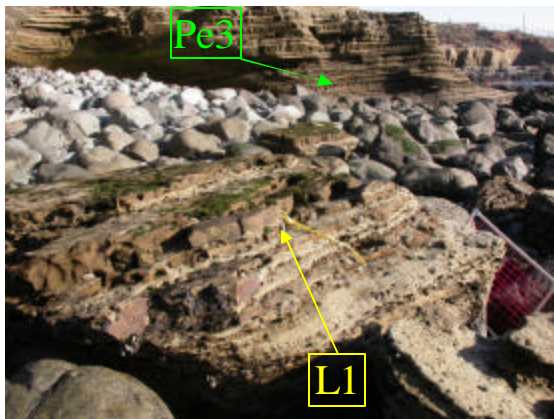
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	284	14.70	60
Pe1	291	13.50	85
Pe2	290	7.90	40
Po2	276S	10.45	150



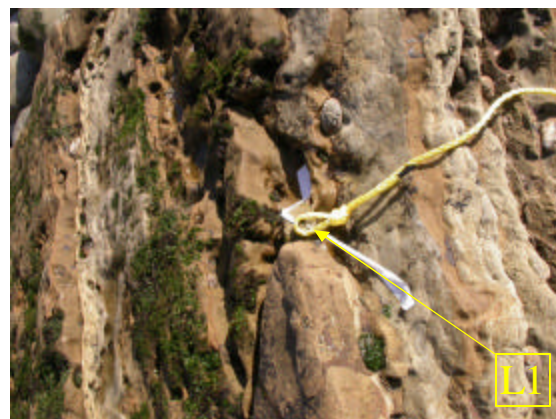
January 2006, taken from cliffs above.



January 2006, cone over bolt.



January 2006, yellow string around bolt. Pink quadrat does not mark anything.



January 2006, yellow string and white tape around bolt. (Photo is 90° rotated).

Last Update: Jun-06

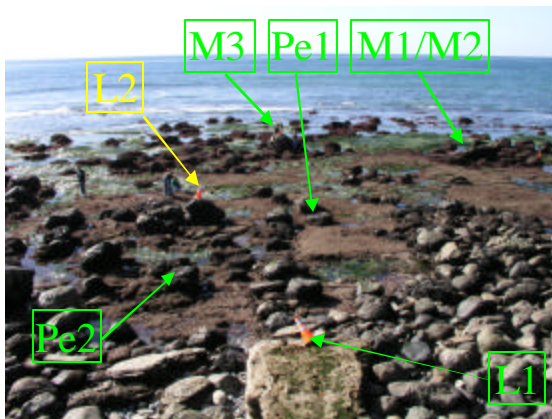
L2 (284)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.669396°N 117.245625°W
Height	52.22 in.

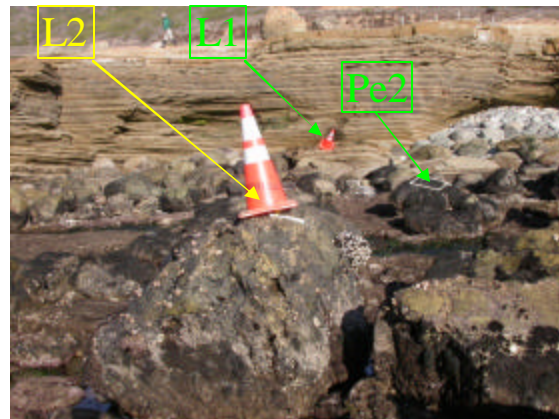
Description: Due west of L1 on big peaky boulder. An old copper bolt on the ocean side and towards the top of the boulder.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	280	14.70	240
M3	296	21.05	100
M4	289	20.50	85
M5	285	13.55	35
M6	275	15	60

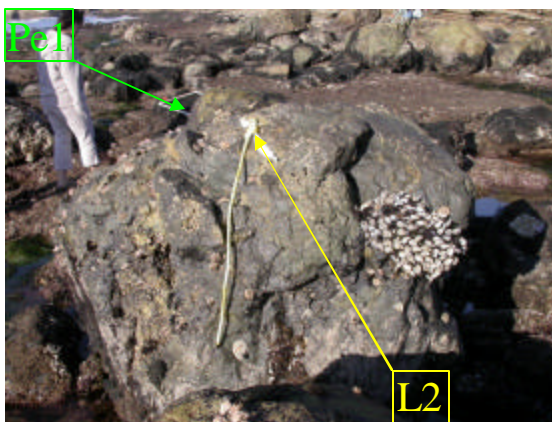
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
Pe1	291	5.90	190
Pe2	290	7.27	270
T1S	237S	31.13	173
G3N	238N	32.31	166
K5S	236S	29.41	134



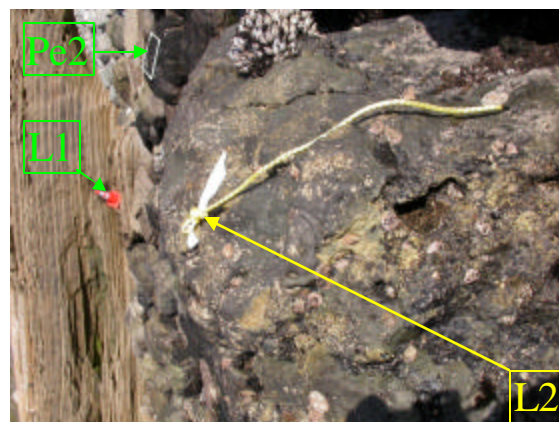
January 2006, taken from cliffs above. Cone on bolt.



January 2006, cone on bolt.



January 2006, yellow string and white tape around bolt.
Last Update: Jun-06



January 2006, yellow string and white tape around bolt. (Photo is 90° rotated).

L3 (283)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.669262°N 117.245514°W
Height	51.22 in.

Description: The rock is located south of a very large boulder that is usually mistaken for L3. The bolt is old copper type, on top of the boulder. There is also a blob of putty that used to have a tag in it. Due west of Po3, due north of L4.

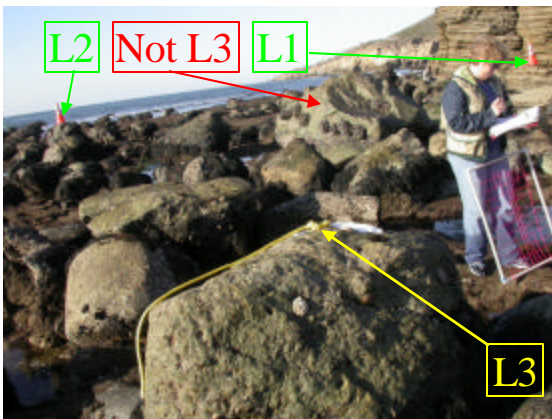
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
Pe3	295	8.95	145
Pe4	288	5.82	35
Pe5 _(UL)	287	10.10	300
Po3	281N	15.80	250
T2N	210N	21.22	317



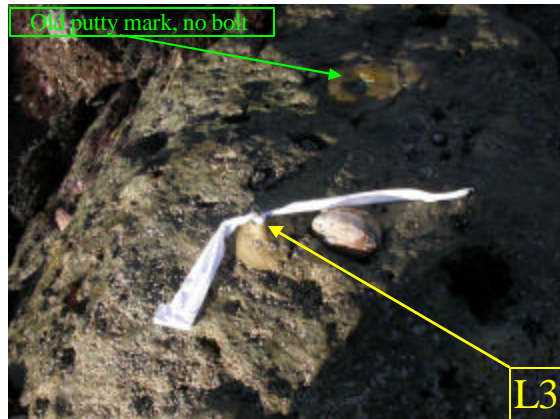
January 2006, yellow string and white tape on bolt. Cones do not mark plots.



January 2006, yellow string and white tape on bolt.



January 2006, yellow string and white tape on bolt.



January 2006, white tape on bolt.

L4 (282)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.669110°N 117.245449°W
Height	65.22 in.

Description: On the back side of a very large boulder. Old copper bolt on ocean side of biggest boulder you can see from the path into the tidepools. Bolt is located about 2/3 way towards top of boulder. You can only see it from the ocean side.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B5	293	9.55	180
Pe3	295	27.47	175
Pe5(UL)	287	10.60	178
T2N	210N	5.24	272
T2C	210C	10.20	290
T2S	210S	14.80	300

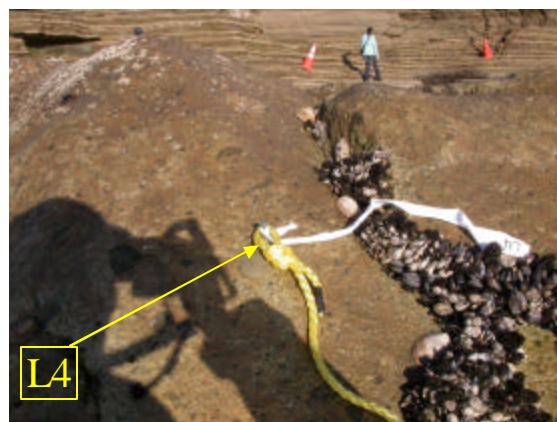
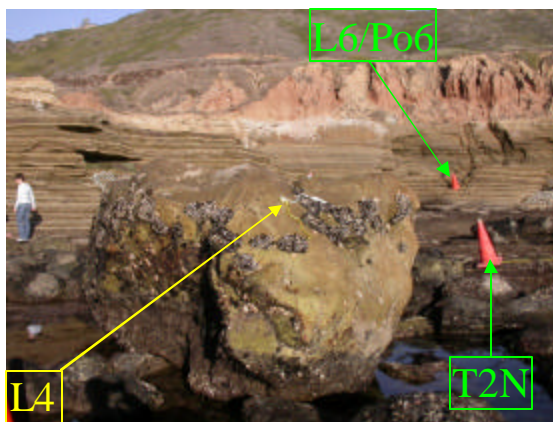
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	211N	23.17	280
G4S	211S	28.85	295
K6N	212N	14.80	300
K6S	212S	24.27	302



January 2006, taken from path to intertidal. Cone on bolt, which is on far side of boulder.



January 2006, cone on bolt. Transect line is unrelated to the plots. Cones in the distance mark transects.



January 2006, yellow string and white tape on bolt.

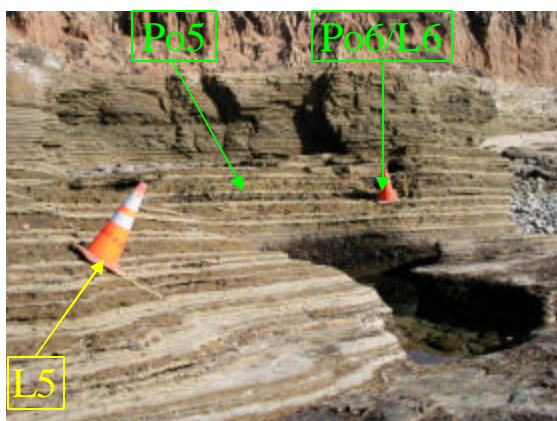
L5 (279)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.669154°N 117.245280°W
Height	56.72 in.

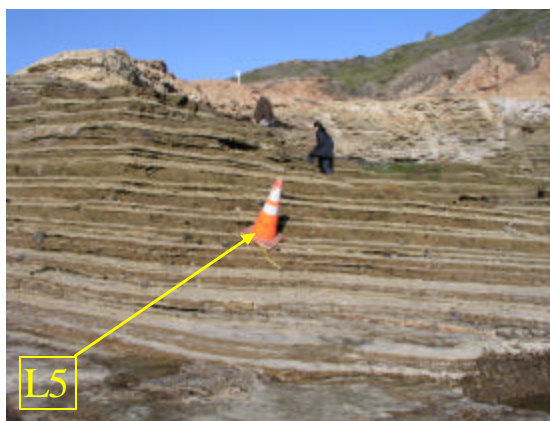
Description: On the cliff to the right as you head down the cliff into the tidepools. Stainless steel bolt of medium height.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L6	277	8.08	300
Pe5(UL)	287	14.77	100
Po4	281S	9.25	122
Po5	278N	6.00	275

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2N	210N	12.52	44
T2C	210C	13.38	25
T2S	210S	15.77	5
G4N	211N	14.58	324
G4S	211S	24.21	330
K6N	212N	15.77	5



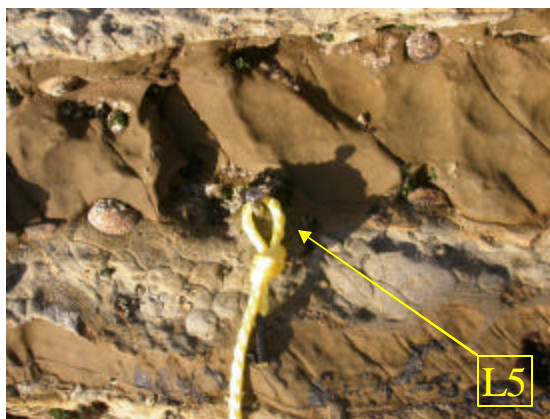
January 2006, cone on bolt.



January 2006, cone on bolt.



January 2006, yellow string around bolt.
(Photo is 90° rotated).



January 2006, yellow string around bolt.

Last Update: Jun-06

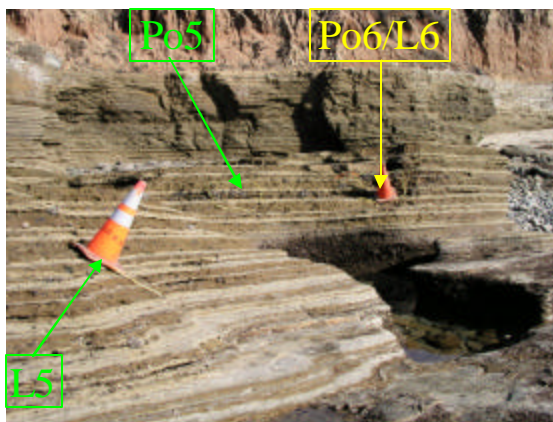
L6 (277)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.669113°N 117.245213°W
Height	48.22 in.

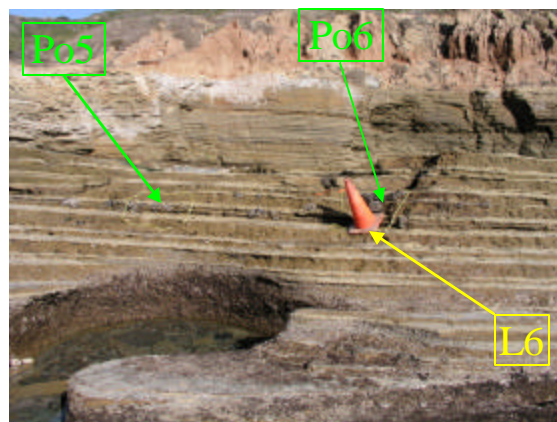
Description: Overlaps with Po6, but it has its own bolt located in between the lower left and lower right markers of Po6. Right at the bottom of the cliff when you first enter the park, just south of Po5. It is an old copper bolt that is pretty short. We decided not to replace it with a longer one because this is a high traffic area.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L5	279	8.08	120
Po5	278N	3.10	155
Po6	278S	0.76	205
T2N	210N	17.45	66
T2C	210C	15.79	54
T2S	210S	15.66	35

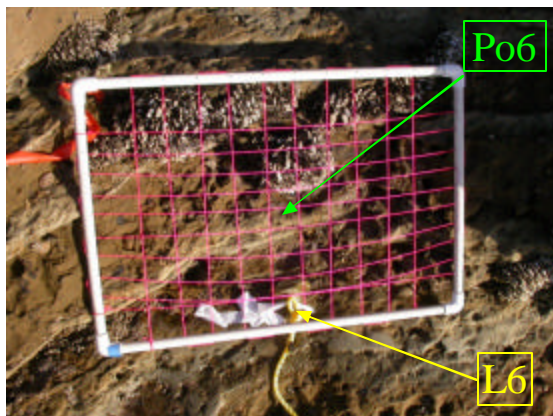
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	211N	8.77	351
G4S	211S	18.52	346
K6N	212N	15.66	35
K6S	212S	19.10	360



January 2006, cone on bolt.



January 2006, cone on bolt.



January 2006, yellow string and white tape around bolt. Pink quad over Po6.



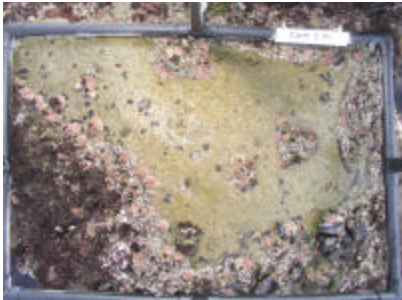
January 2006, yellow string and white tape around bolt. (Photo is 90° rotated).

B1 (286)

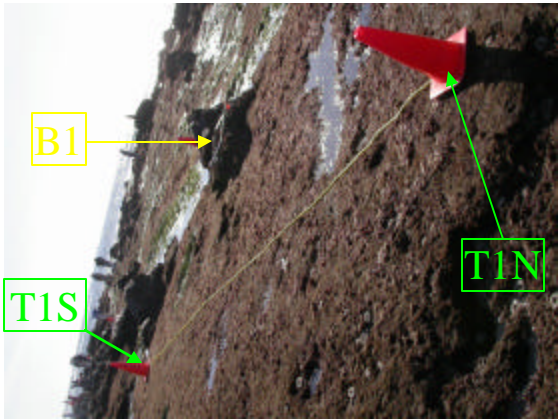
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669721°N 117.245609°W
Height	30.47 in.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B2	299	10.73	360
M1	298	23.76	60
T1N	237N	5.88	199
T1S	237S	5.49	320
G3N	238N	4.15	13
G3C	238C	~9.1	360
K5N	236N	15.2	71

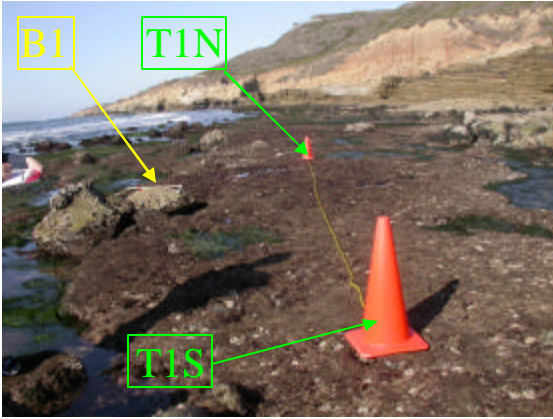
Description: There are two boulders northwest of Po1 and Po2, and just west of the T1 transect. The plot is on the northern boulder of the two. It is also shorter and flatter.



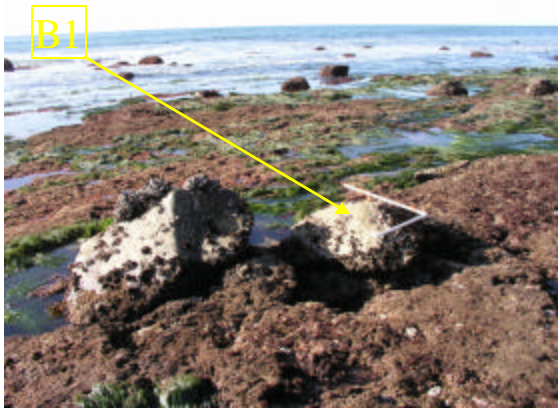
I B1 FA05



January 2006, partial quadrat on plot. (Photo is rotated 90°).

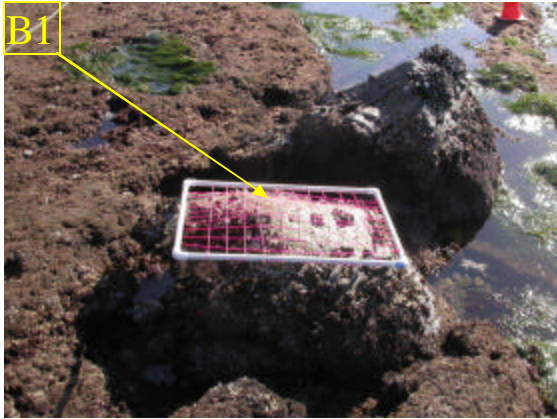


January 2006, partial quadrat on plot.



January 2006, partial quadrat on plot.

Last Update: Jun-06



January 2006, pink quadrat on plot.

B2 (299)

Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669621°N 117.245614°W
Height	38.22 in.

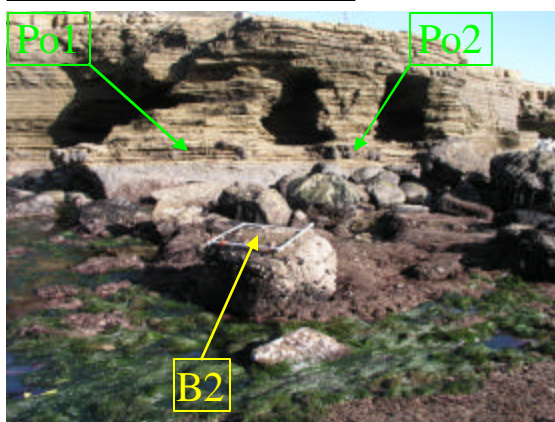
Description: Due west of Po1. It is next to a small boulder that G3 crosses. The plot is on top of the boulder.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B1	286	10.73	180
M1	298	18.65	80
Pe1	291	19.45	360
Po1	276N	9.05	260
Po2	276S	14.70	305

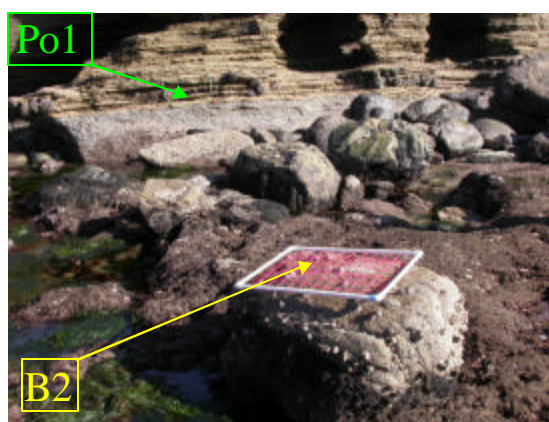
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1S	237S	5.55	188
G3N	238N	6.75	147
G3C	238C	2.63	120
G3S	238S	3.55	10



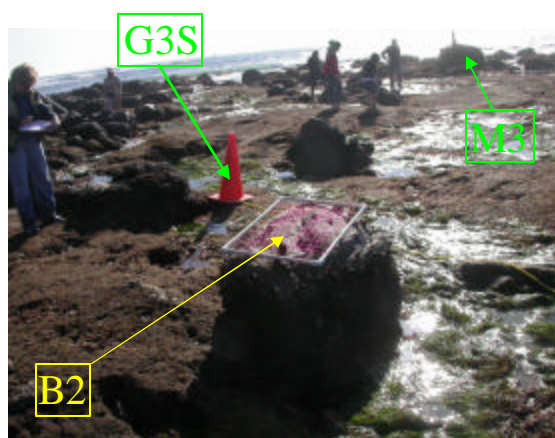
I B2 SP05



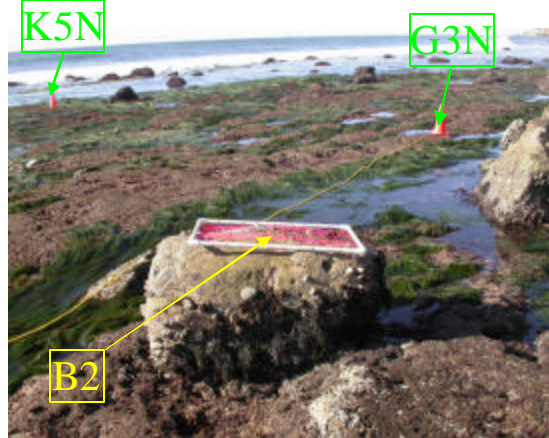
January 2006, white quadrat on plot.



January 2006, pink quadrat on plot.



January 2006, pink quadrat on plot.

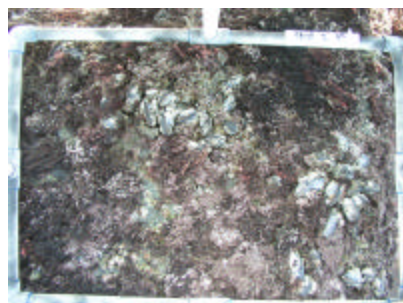


January 2006, pink quadrat on plot.

B3 (294)

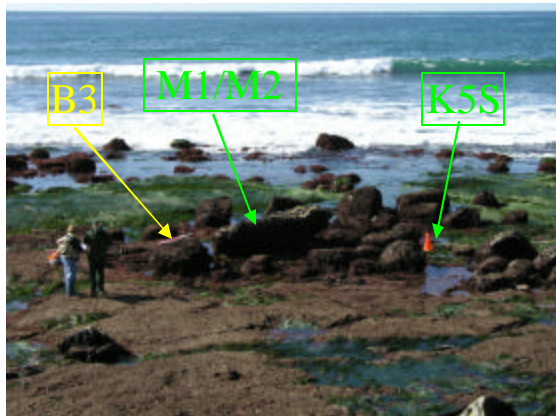
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669486°N 117.245829°W
Height	28.97 in.

Description: Medium-sized boulder on south east of the large M1/M2 boulder. The plot is on top of the boulder, oriented slightly towards the ocean.

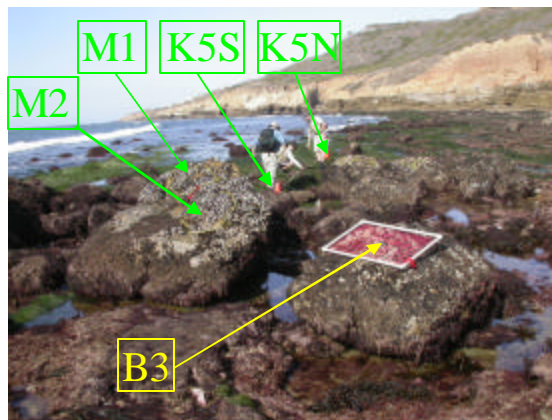


I B3 FA04

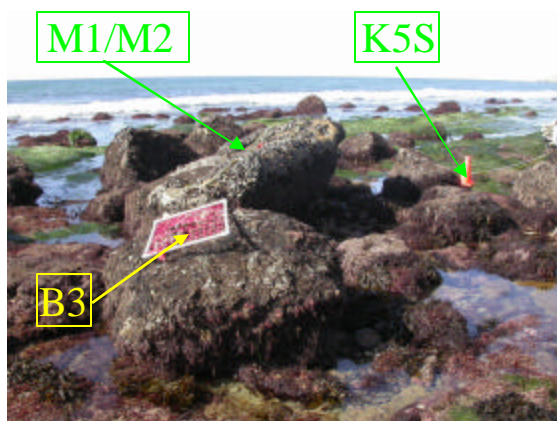
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
M2	297	3.28	180
M3	296	14.20	45
Pe1	291	19.40	310



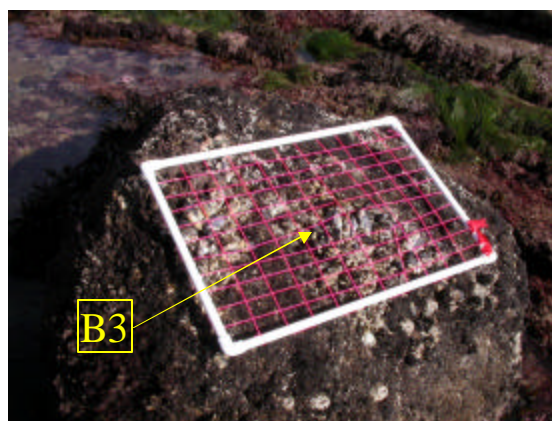
January 2006, pink quadrat on plot. Taken from cliffs above.



January 2006, pink quadrat on plot.



January 2006, pink quadrat on plot.



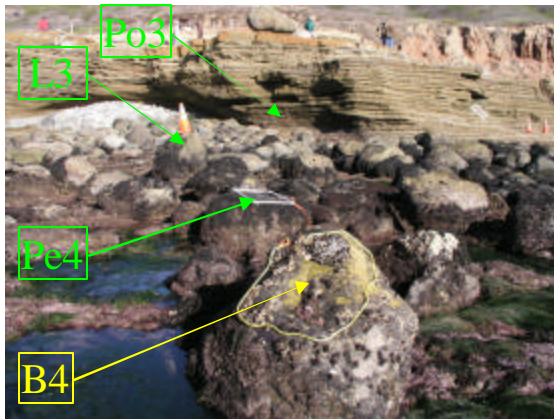
January 2006, pink quadrat on plot.

B4 (292)

Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669211°N 117.245595°W
Height	27.72 in.

Description: Due south of L2. The boulder has a funny shape, where it is vertical facing the cliffs and rounded towards the ocean. Quadrat is oriented horizontally, north to south, on the side facing the ocean. Orientation has been confused in recent years. The one shown in these photos is the one we are using now. In the past, it was oriented vertically, but for the past few years we have switched to horizontal (except in FA05 when we accidentally reverted to the old orientation).

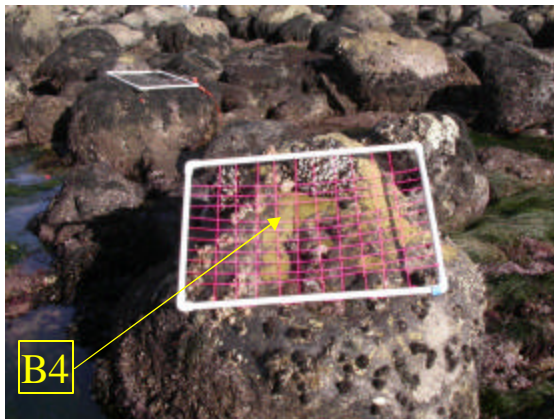
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
M5	285	13.30	130
Pe3	295	13.55	185
Pe4	288	3.78	270



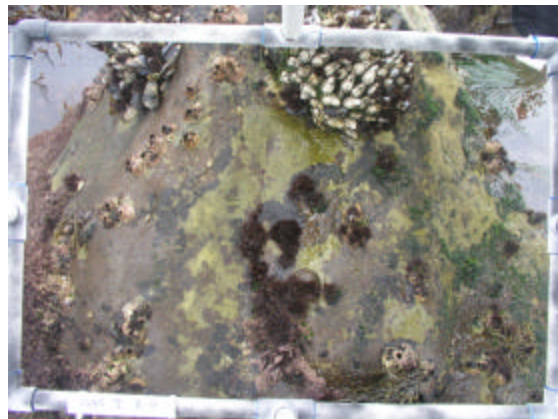
January 2006, yellow rope on plot.



January 2006, yellow rope on plot. Notice the distinct shape of the boulder.



January 2006, pink quadrat on plot.

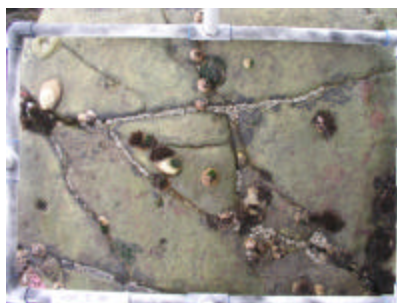


I B4 SP05

B5 (293)

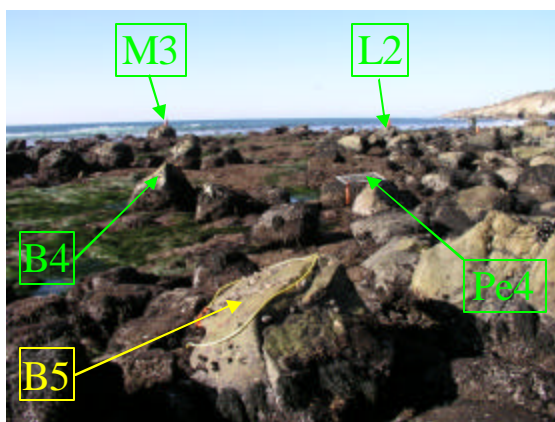
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669166°N 117.245532°W
Height	29.47 in.

Description: If you draw a line between Po4 and Pe5, it lines up with B5. It is located northwest of L4. The quadrat is on the flat surface on the ocean facing side.

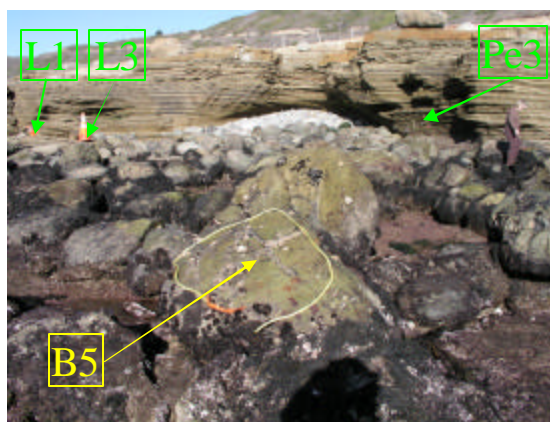


I B5 SP05

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	282	9.55	360
Pe4	288	7.68	180
Pe5	287	10.30	270



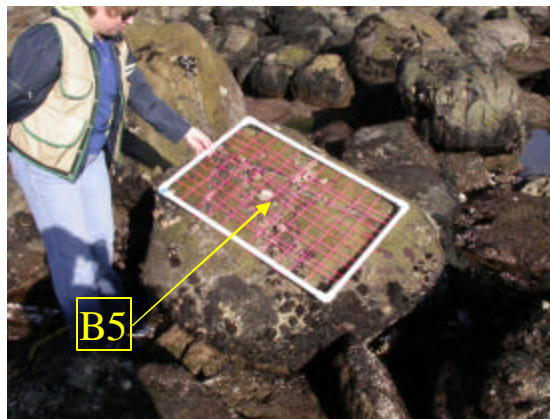
January 2006, yellow rope on plot.



January 2006, yellow rope on plot.



January 2006, pink quadrat on plot.



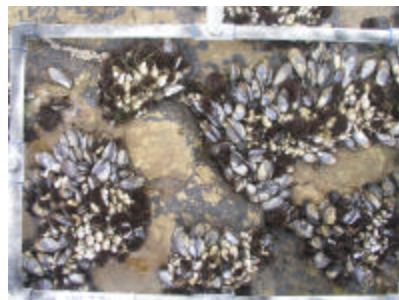
January 2006, pink quadrat on plot.

M1 (298)

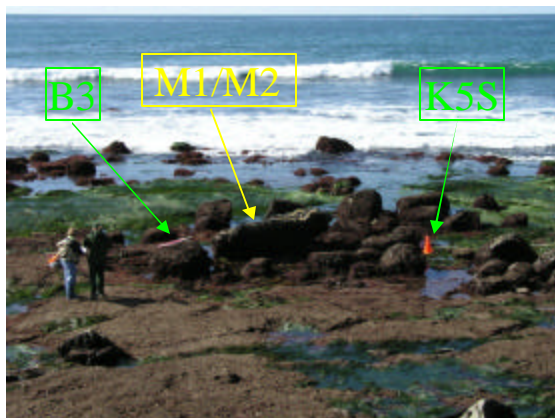
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669525°N 117.245838°W
Height	38.47 in.

Description: On the same boulder as M2. M1 is the northern plot. This boulder is quite large and broad, it is flat but slanted.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B1	286	23.76	240
B2	299	18.65	260
M2	297	0.80	360
K5N	236N	13.52	176
K5S	236S	3.64	171



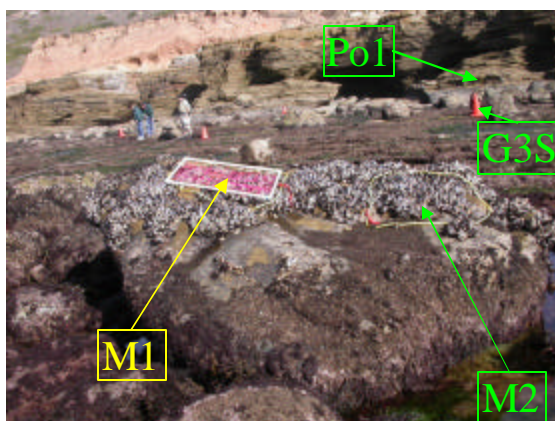
I M1 SP05



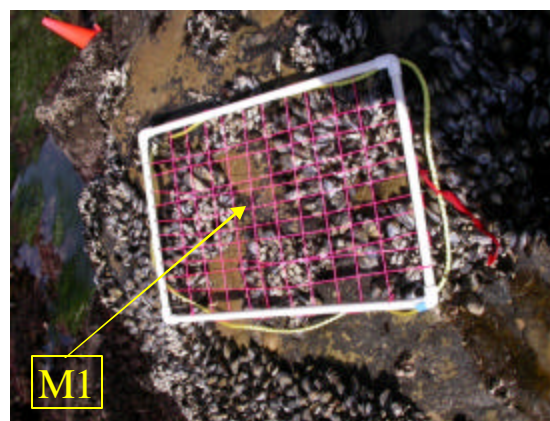
January 2006, yellow rope on plot. Taken from cliffs above.



January 2006, plot on other side of rock. Taken from cliffs above.



January 2006, pink quadrat on plot.



January 2006, pink quadrat on plot.

M2 (297)

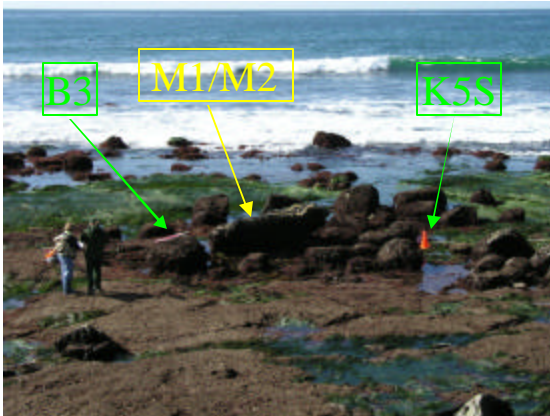
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669516°N 117.245832°W
Height	27.47 in.

Description: On the same boulder as M1. M2 is the southern plot. This boulder is quite large and broad, it is flat but slanted.



I M2 SP05

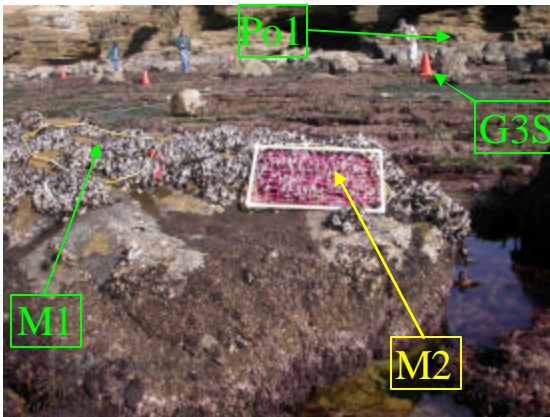
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B3	294	3.28	360
M1	298	0.80	180
Pe1	291	22.40	320



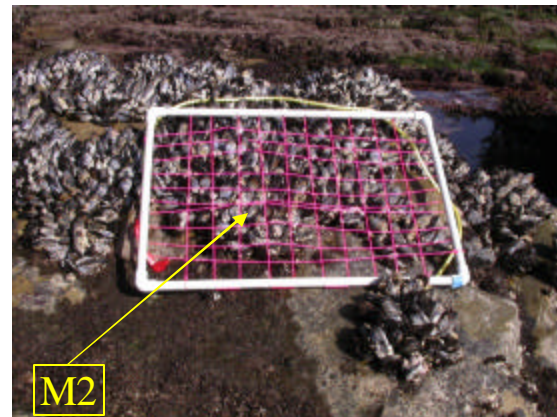
January 2006, yellow rope on plot. Taken from cliffs above.



January 2006, plot on other side of rock. Taken from cliffs above.



January 2006, pink quadrat on plot.

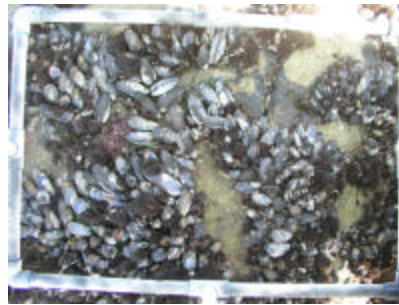


January 2006, pink quadrat on plot.

M3 (296)

Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669365°N 117.245836°W
Height	25.97 in.

Description: On a large, round boulder that is covered with mussels. The plot is on the ocean-side of the boulder, often the corners get buried in mussels.

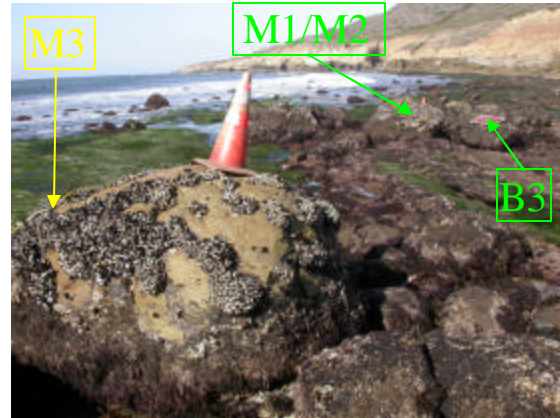


I M3 FA04

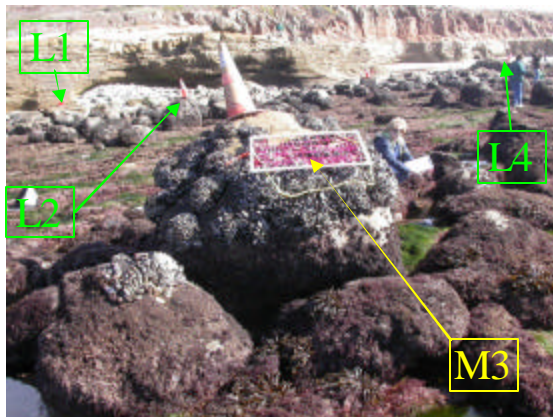
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	284	21.05	280
B3	294	14.20	225
M4(UL)	289	6.37	340
M5(LL)	285	19.55	308



January 2006, cone marks boulder but plot is on other side and not in view.



January 2006, cone marks boulder but plot is on other side marked with yellow rope.



January 2006, pink quadrat on plot, cone just marks boulder.
Last Update: Jun-06

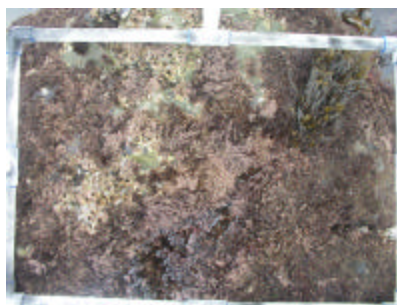


January 2006, pink quadrat on plot, cone just marks boulder.

M4 (289)

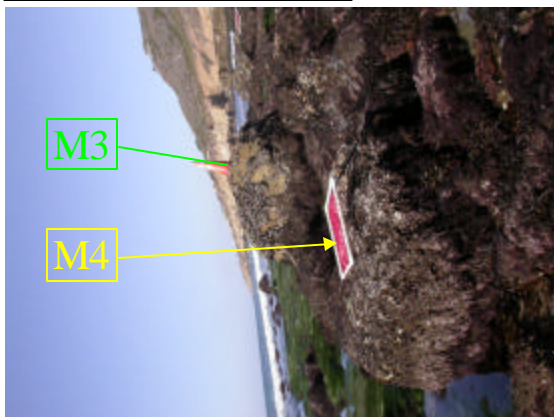
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669308°N 117.245801°W
Height	18.47 in.

Description: Quadrat oriented directly north/south.

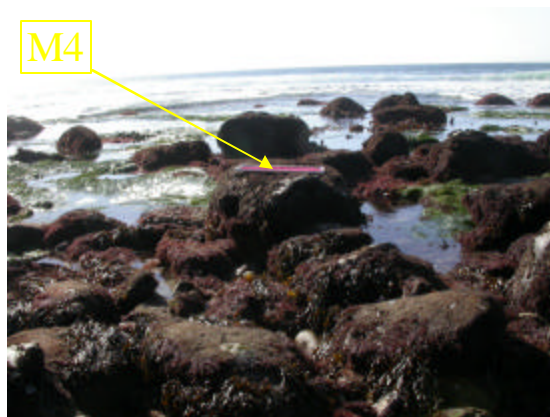


I M4 SP05

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	284	20.50	265
M3 (UR)	296	6.37	160
M5	285	14.60	295
M6	275	7.95	310
Pe3	295	26.55	290



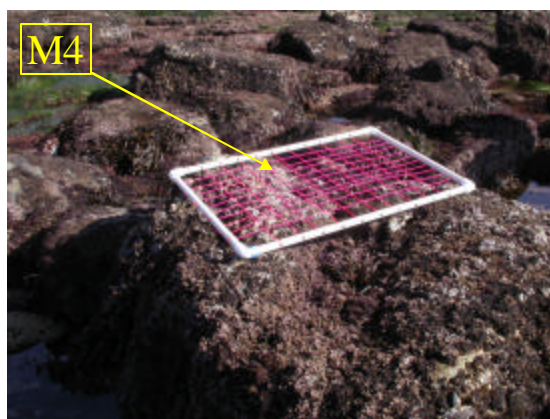
January 2006, pink quadrat on plot. (Photo is rotated 90°).



January 2006, pink quadrat on plot.



January 2006, pink quadrat on plot.



January 2006, pink quadrat on plot.

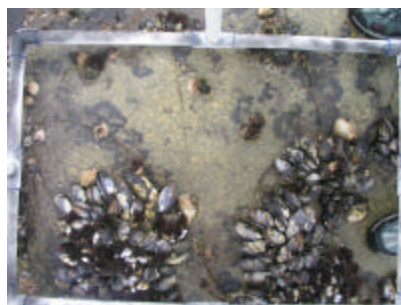
M5 (285)

Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669291°N 117.245657°W
Height	31.22 in.

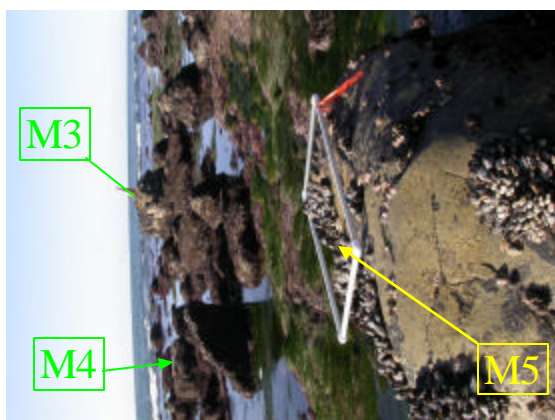
Distance from:

Plot	Site	Dist. (m)	Dir. (°)
L2	284	13.55	215
B4	292	13.30	310
M3 (UR)	296	19.55	128
M4	289	14.60	115
M6	275	7.61	139
Pe3	295	14.95	270

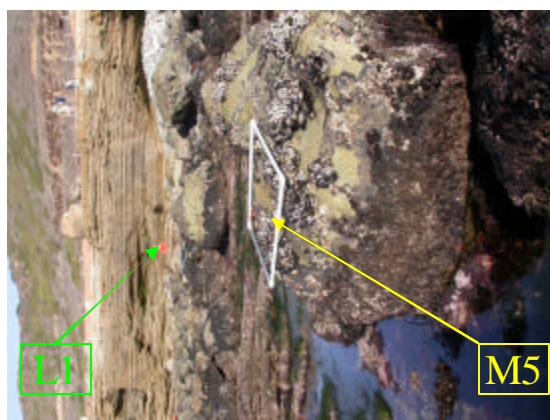
Description: Due west of Pe3. It is a big roundish boulder. The quadrat is on the top of the northern side of the boulder.



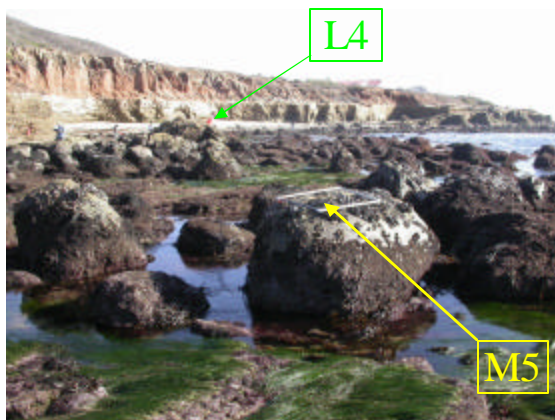
I M5 SP05



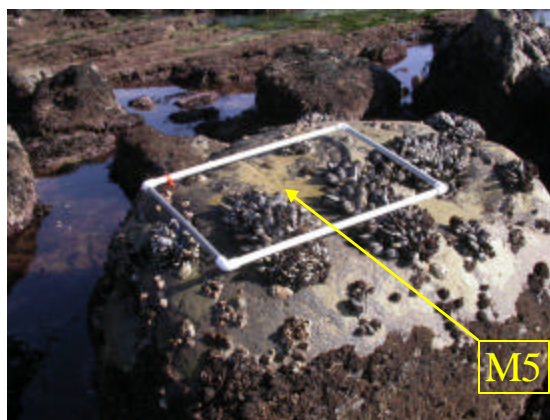
January 2006, white quadrat on plot. (Photo is rotated 90°).



January 2006, white quadrat on plot. (Photo is rotated 90°).



January 2006, white quadrat on plot.



January 2006, white quadrat on plot.

M6 (275)

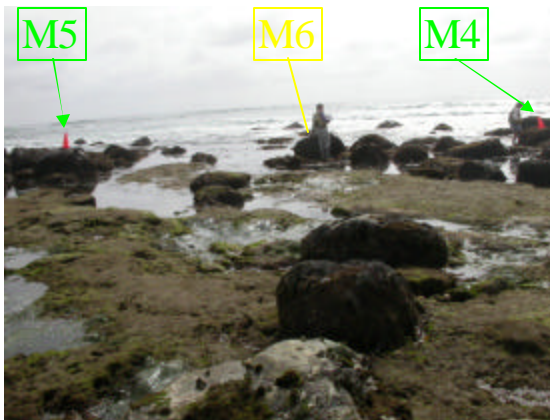
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669383°N 117.245767°W
Height	15.88 in.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	284	15.00	240
M4	289	7.95	130
M5	285	7.61	319

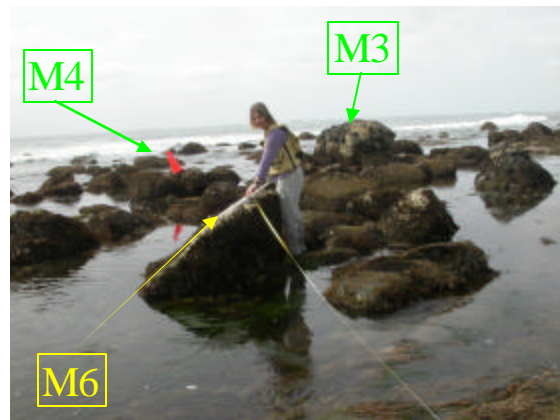
Description: Established in SP06 to track the damage of a boat accident in February 2006. On boulder that has a flat part facing the ocean. Plot on upper left corner of boulder. Coordinates and tidal height taken from cage 5D from 2004-05 Mussel Watch Project.



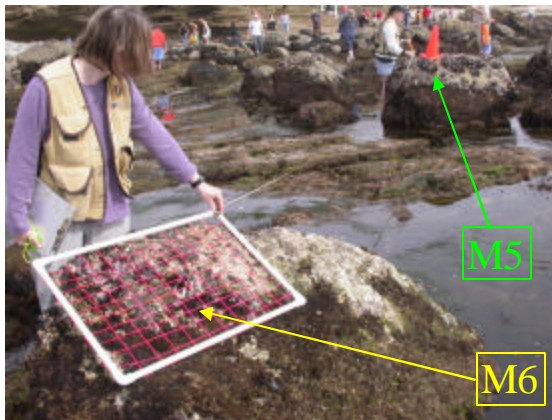
I M6 SP06



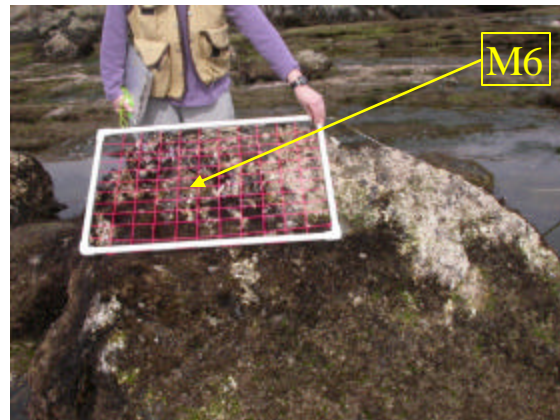
Taken in 3/06, taken from Pe1. Bettina in front of boulder, plot on far side of rock.



Taken in 3/06. Pink quadrat on plot.



Taken in 3/06. Pink quadrat on plot.



Taken in 3/06. Pink quadrat on plot.

Pe1 (291)

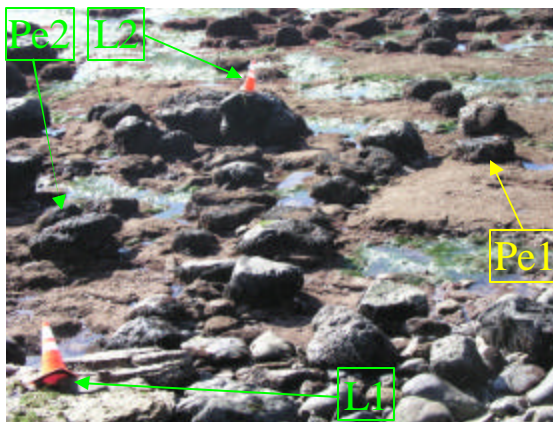
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669444°N 117.245619°W
Height	20.72 in.

Description: A low flat boulder just west of the flat bench and northwest of L1.

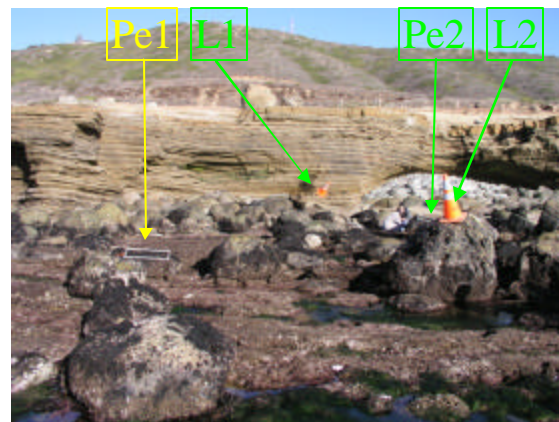


I Pe1 SP05

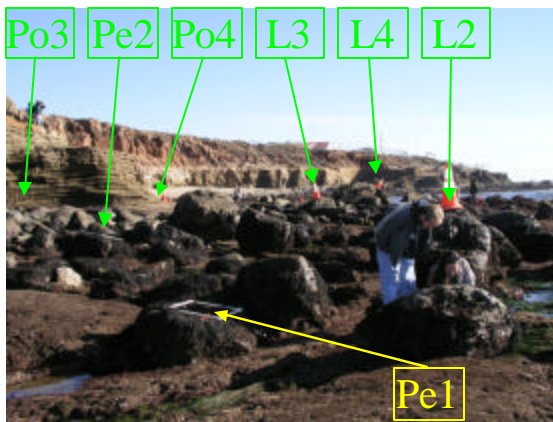
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	280	13.50	265
L2	284	5.90	10
B2	299	19.45	180
B3	294	19.40	130
M2	297	22.40	140
Pe2	290	6.50	310



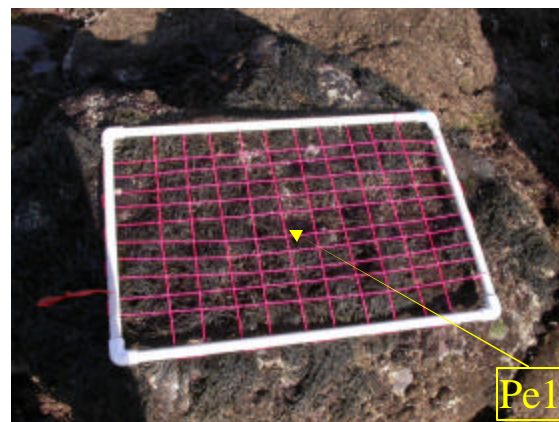
Taken in 1/06. Quad on plot.



Taken in 1/06. Quad on plot.



Taken in 1/06. Quad on plot.



Taken in 1/06. Pink quad on plot.

Pe2 (290)

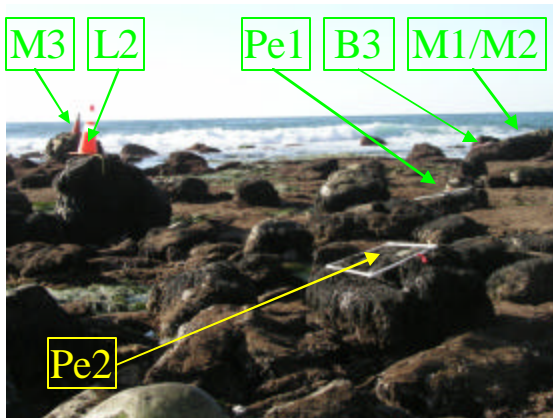
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669396°N 117.245541°W
Height	31.72 in.

Description: Low boulder west and slightly south of L1 (close to L1). Due north of the big boulder that is often mistaken for L3.

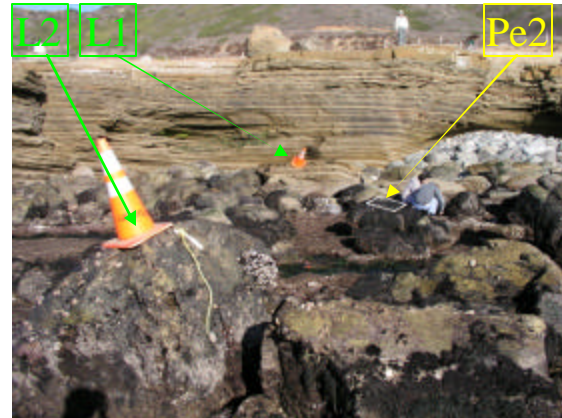


I Pe2 FA05

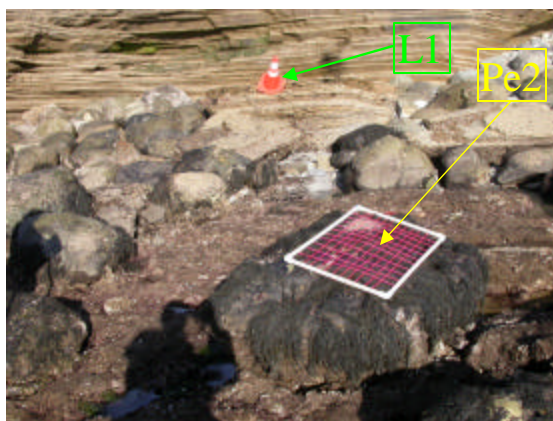
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	280	7.90	220
L2	284	7.27	90
Pe1	291	6.50	130
Pe3	295	7.00	5



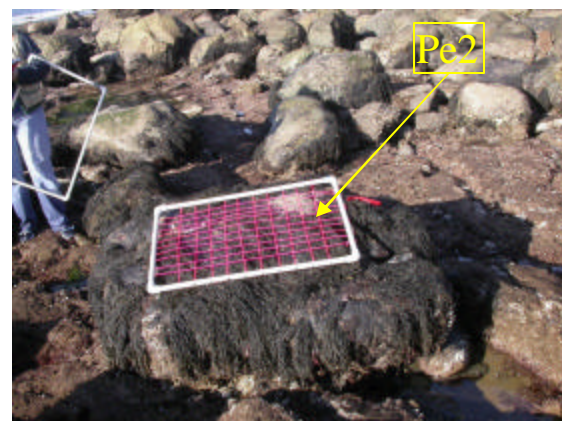
Taken in 1/06. Quad on plot.



Taken in 1/06. Quad on plot.



Taken in 1/06. Pink quad on plot.



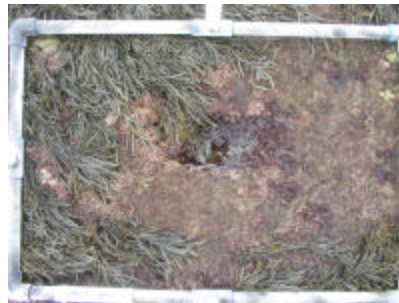
Taken in 1/06. Pink quad on plot.

Pe3 (295)

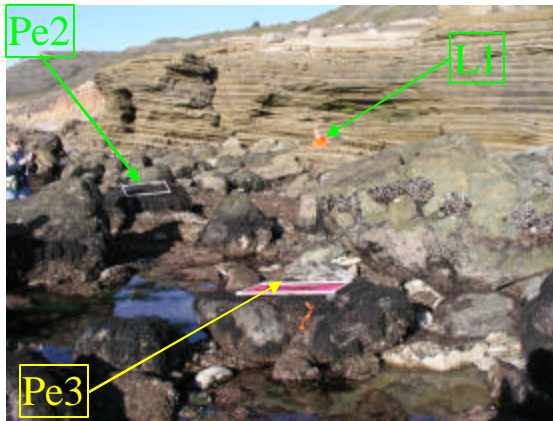
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669334°N 117.245551°W
Height	18.97 in.

Description: Low, broad, flat boulder. Approximately 3 feet west of very big boulder that is often mistaken for L3. Due west of indent in the cliff that fills with cobble. Can see the wayside signs up on the cliff from the plot.

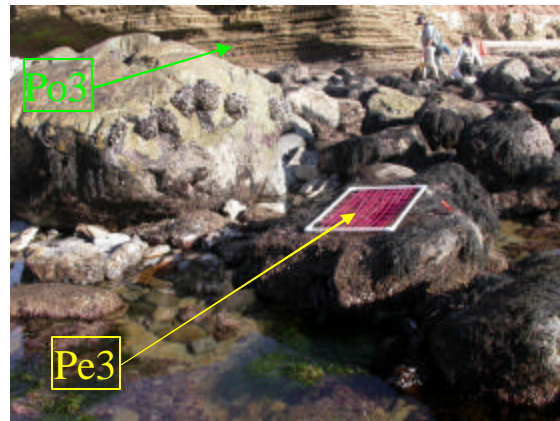
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	283	8.95	325
L4	282	27.47	355
B4	292	13.55	5
M4	289	26.55	110
M5	285	14.95	90
Pe2	290	7.00	185
Pe4	288	11.20	360



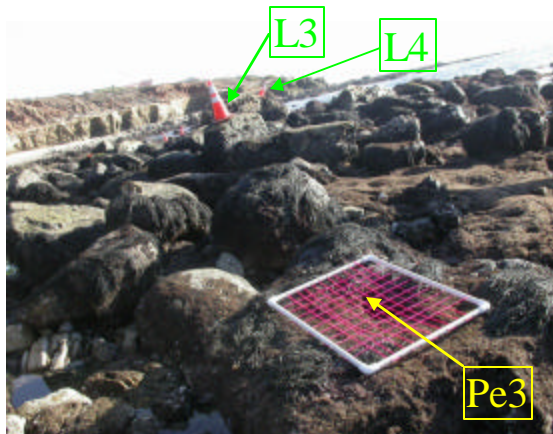
I Pe3 SP05



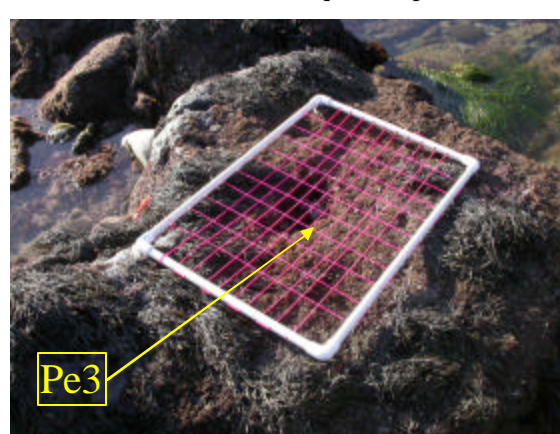
Taken in 1/06. Pink quad on plot.



Taken in 1/06. Pink quad on plot.



Taken in 1/06. Pink quad on plot.



Taken in 1/06. Pink quad on plot.

Pe4 (288)

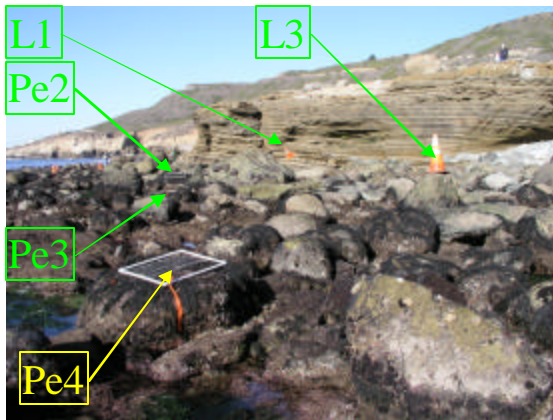
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669228°N 117.245549°W
Height	24.47 in.

Description:

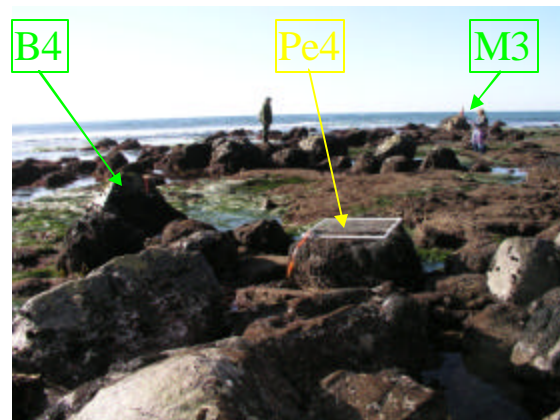


I Pe4 FA04

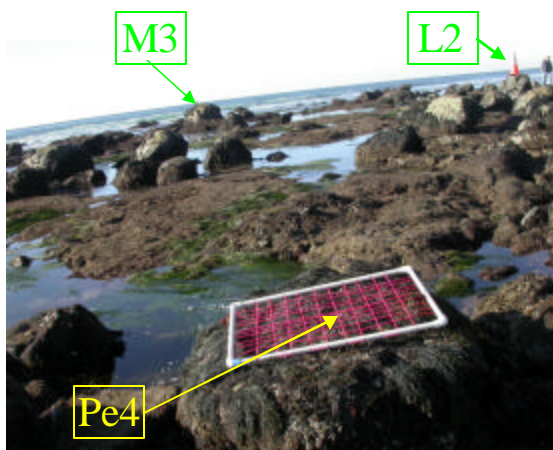
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	283	5.82	215
B4	292	3.78	90
B5	293	7.68	360
Pe3	295	11.20	180



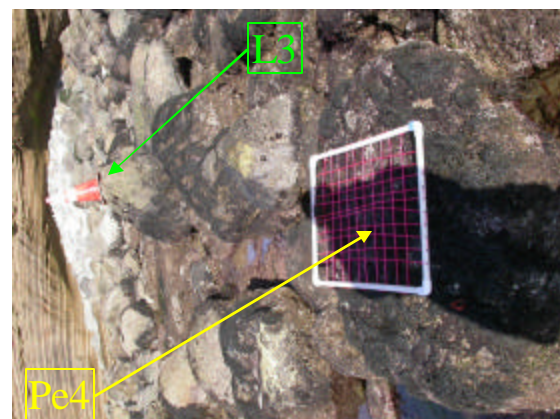
Taken in 1/06. White quad on plot.



Taken in 1/06. White quad on plot.



Taken in 1/06. Pink quad on plot.



Taken in 1/06. Pink quad on plot.

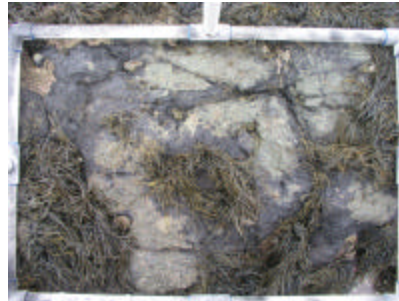
Pe5 (287)

Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669194°N 117.245424°W
Height	38.47 in.

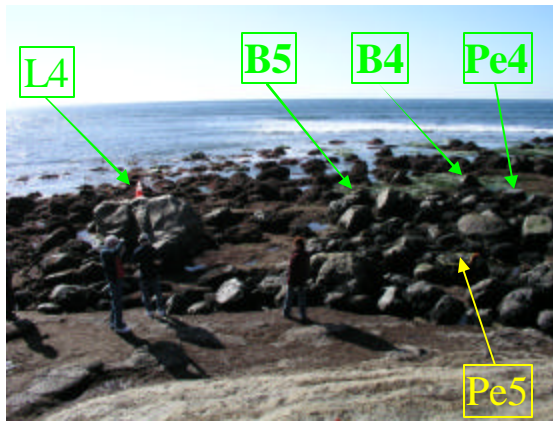
Description: Due west of Po4. There are about 7m between Pe5 and Po4.

Distance from:

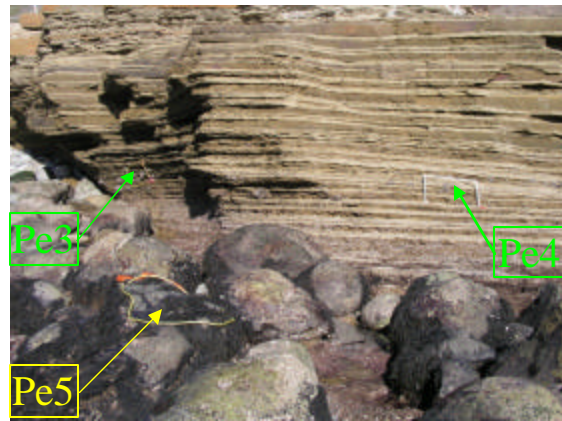
Plot	Site	Dist. (m)	Dir. (°)
L3	283	10.10	120
L4	282	10.60	358
L5	279	14.77	280
B5	293	10.30	90
Po3	281N	12.42	205
Po4	281S	7.06	250
T2N	210N	11.21	331



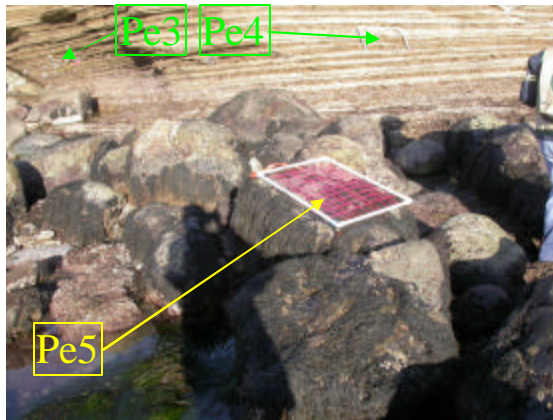
I Pe5 SP05



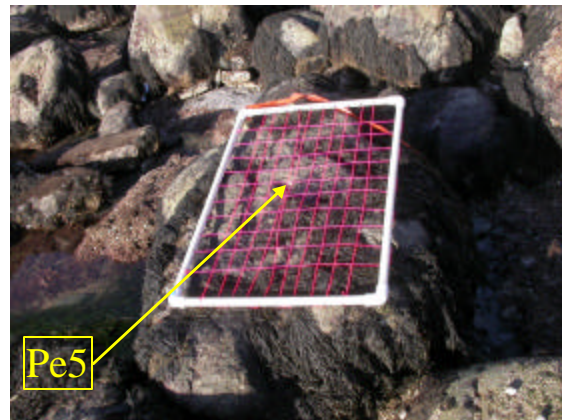
Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Pink quad on plot.



Taken in 1/06. Pink quad on plot.

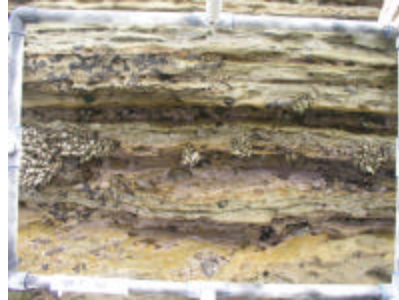
Po1 (276N)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669617°N 117.245517°W
Height	53.22 in.

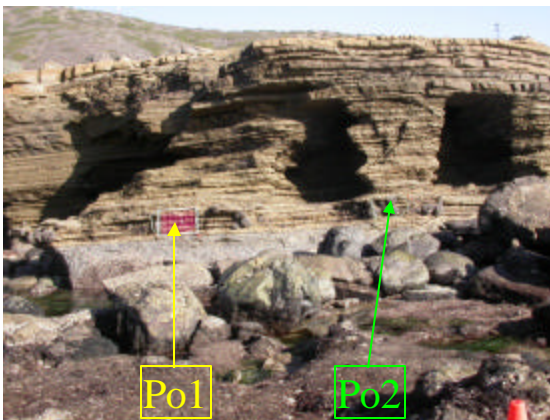
Description:

Distance from:

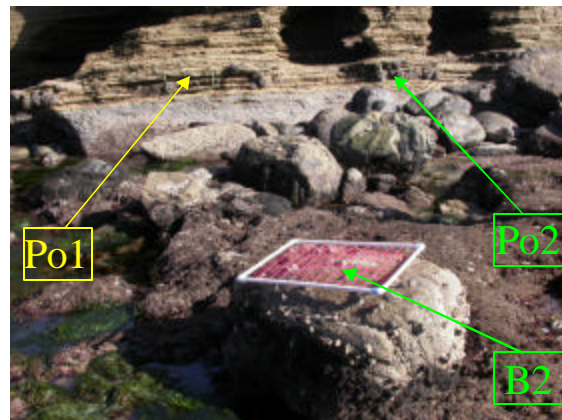
Plot	Site	Dist. (m)	Dir. (°)
B2	299	9.05	80
Po2	276S	10.17	345
T1N	237N	17.43	145
T1S	237S	9.32	119
G3N	238N	13.30	111
G3S	238S	10.70	55



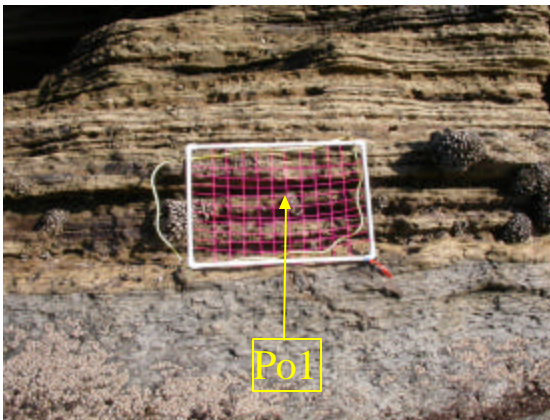
I Po1 SP05



Taken in 1/06. Pink quad on plot.



Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Pink quad on plot.

Last Update: Jun-06

Po2 (276C)

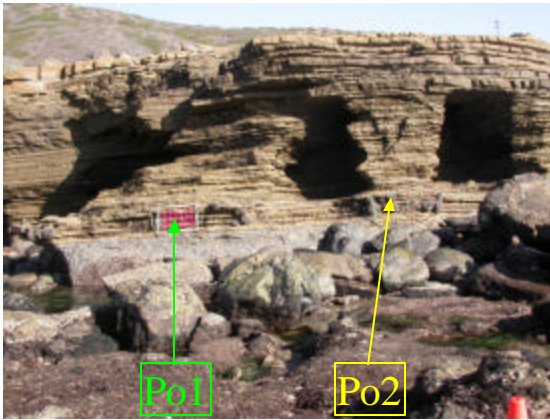
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669573°N 117.245522°W
Height	55.72 in.

Description:



1 Po2 FA05

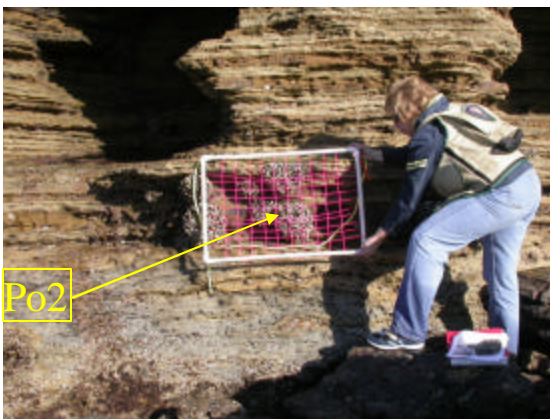
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	280	10.45	330
B2	299	14.70	125
Po1	276N	10.17	165
G3S	238S	13.60	110



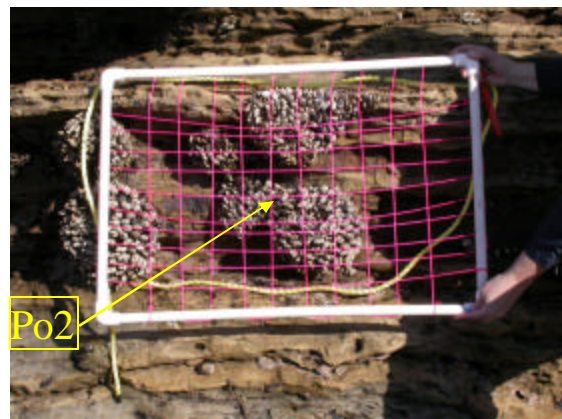
Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Pink quad on plot.



Taken in 1/06. Pink quad on plot.



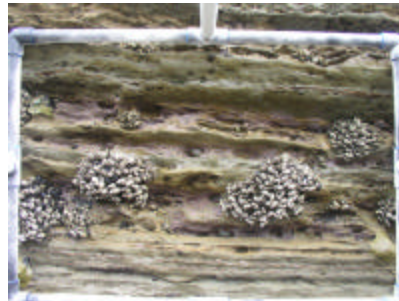
Taken in 1/06. Pink quad on plot.

Po3 (281N)

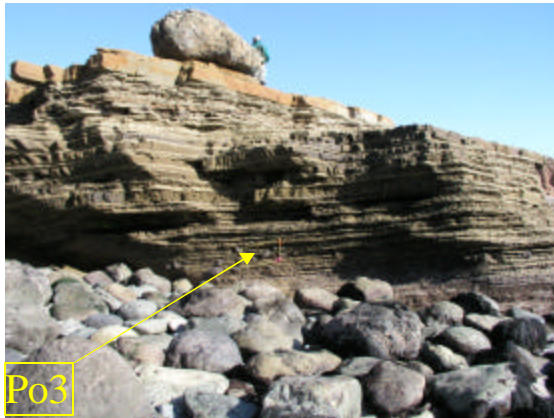
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669293°N 117.245373°W
Height	64.22 in.

Description: On cliff that has been undercut, around the corner from Po4. It is underneath a giant boulder up on the cliff. Ignore the green copper bolt which is not aligned with the others—it is from an old transect. Use the upper markers for orientation. Ignore the extra old bolt on the left side of the plot.

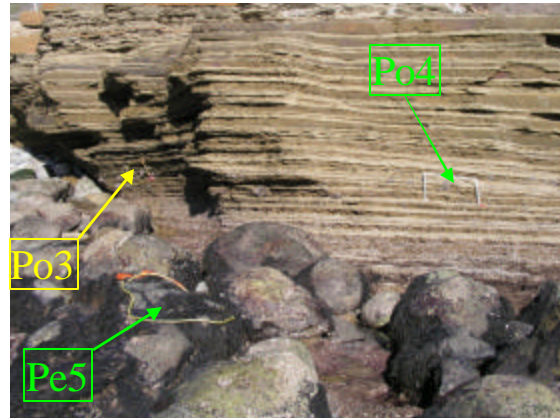
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	283	15.80	70
Pe5	287	12.42	25
Po4	281S	9.90	360



I Po3 SP05



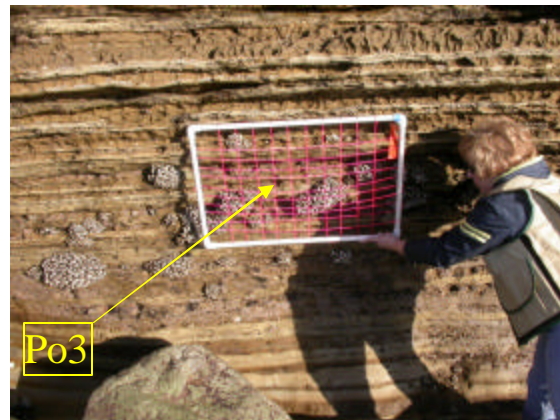
Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Yellow rope on plot. Pink quad on ground does not mark anything.
Last Update: Jun-06

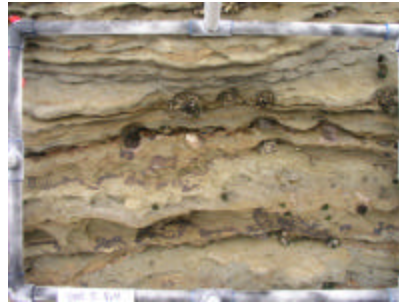


Taken in 1/06. Pink quad on plot.

Po4 (281S)

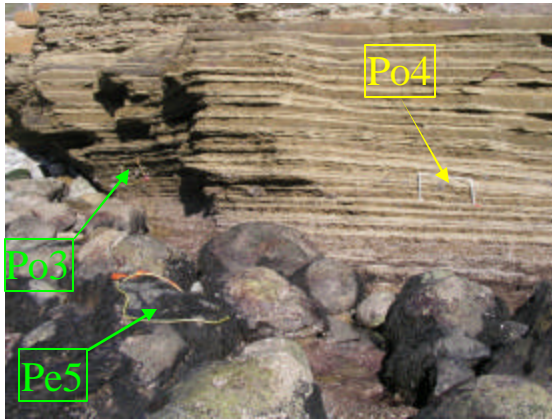
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669219°N 117.245355°W
Height	16.22 in.

Description: When you head down the cliff into the tidepools, take a hard right. It's on the cliff around the corner from L5. There is an extra old bolt on the right side of the plot.



I Po4 SP05

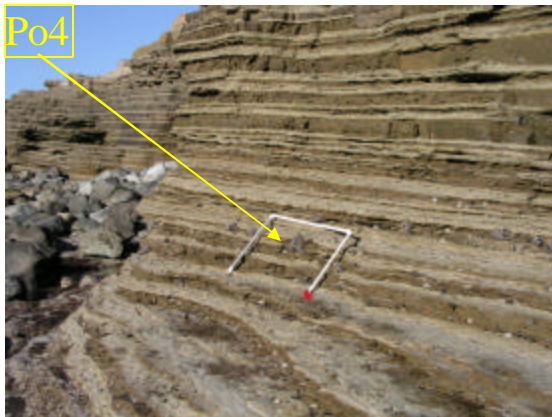
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L5	279	9.25	302
Pe5(UL)	287	7.06	70
Po3	281N	9.90	180
Po5	278N	6.03	340



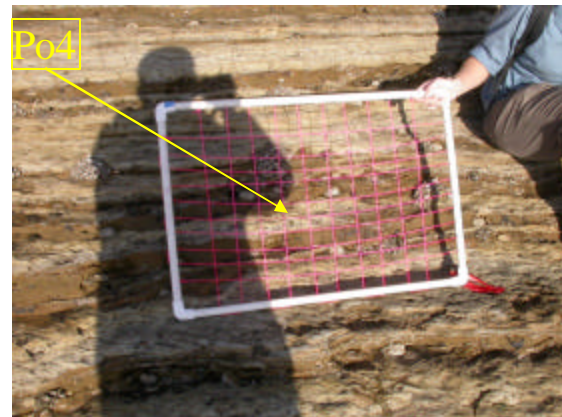
Taken in 1/06. White partial quad on plot.



Taken in 1/06. Pink quad on plot.



Taken in 1/06. White partial quad on plot.



Taken in 1/06. Pink quad on plot.

Po5 (278N)

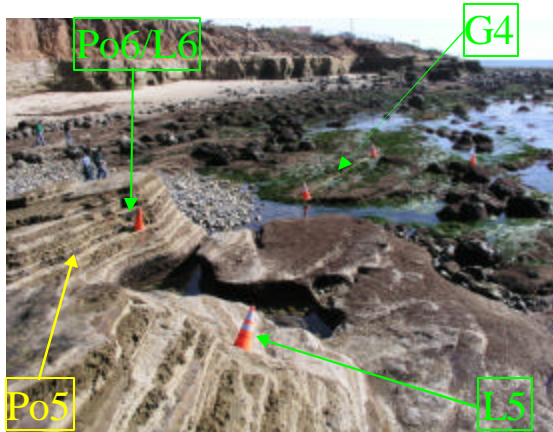
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669139°N 117.245216°W
Height	54.22 in.

Description: Just north of Po6. Right at the bottom of the cliff when you enter the tidepools. It is marked with 4 bolts, east of the big pool and due south of the deep round pool. There is an extra old bolt on the right side of plot.

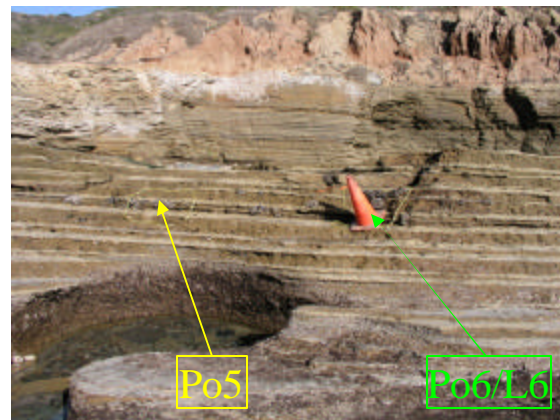
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L5	279	6.00	95
L6	277	3.10	335
Po4	281S	6.03	160
Po6	278S	2.87	335



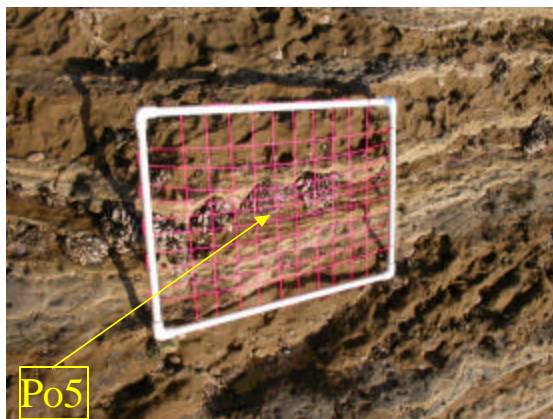
I Po5 FA05



Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Yellow rope on plot.

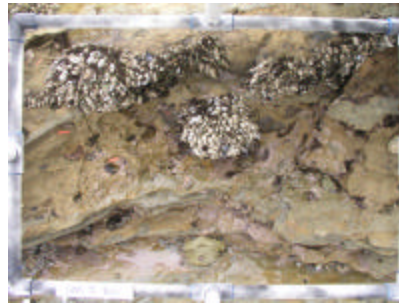


Taken in 1/06. Pink quad on plot.

Po6 (278S)

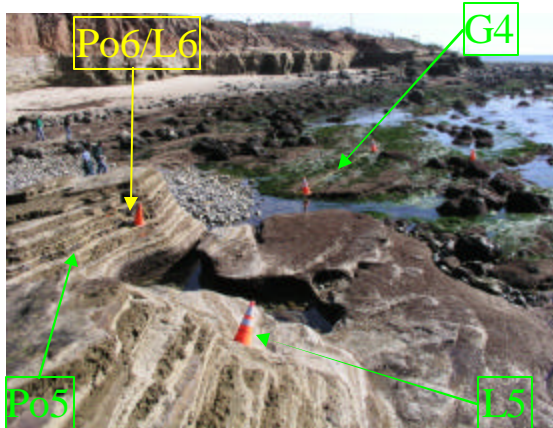
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.669116°N 117.245204°W
Height	56.97 in.

Description: Overlaps with L6, but has independent bolts. So there is an “extra” bolt that corresponds to the circular plot (along the lower axis of the quadrat), and then four proper corners for this. Just south of Po6. Right at the bottom of the cliff when you enter the tidepools.

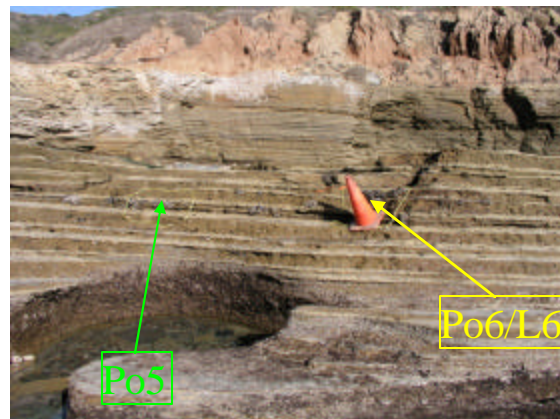


I Po6 SP05

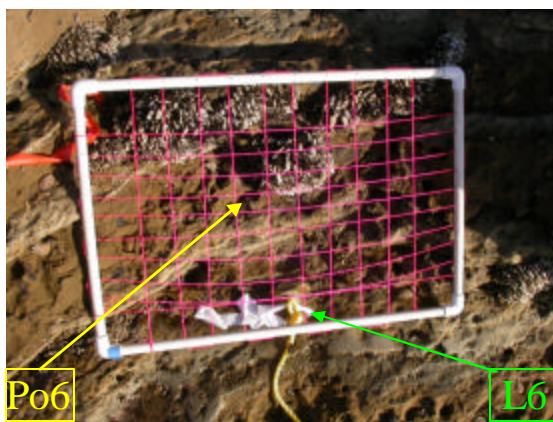
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L6	277	0.76	25
Po5	278N	2.87	155
G4N	211N	7.50	35



Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Pink quad on plot.

Last Update: Jun-06

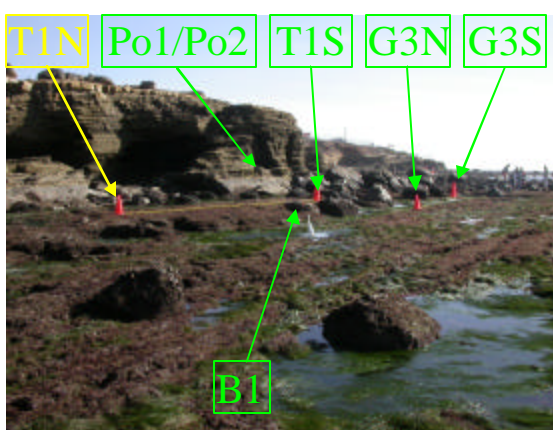
T1N (237N)

Target	Red Algal Turf
Type	Transect
Bolts	1 of 3, line
Coordinates	32.669761°N 117.245583°W
Height	23.22 in.

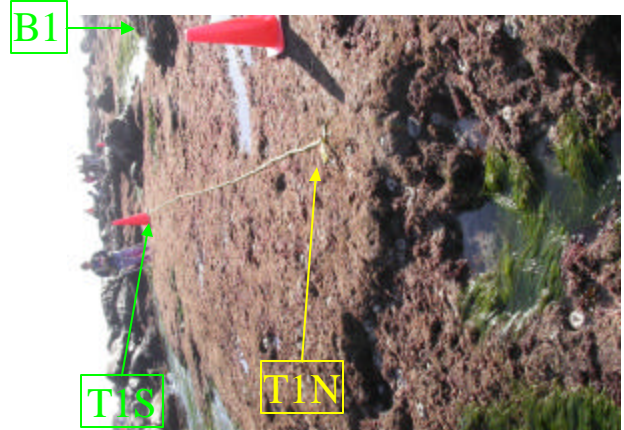
Description: First ledge out from the cliffs. It is a stainless steel bolt that is about 2 inches from an old copper bolt. Use the stainless one.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B1 (LR)	286	5.88	19
Po1 (LL)	276N	17.43	325
T1C	237C	5.02	350
T1S	237S	10.06	351

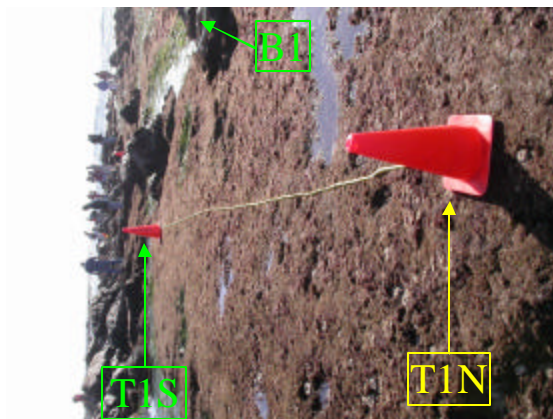
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	238N	9.93	16
G3S	238S	19.20	350
K5N	236N	19.21	58
K5S	236S	25.50	36



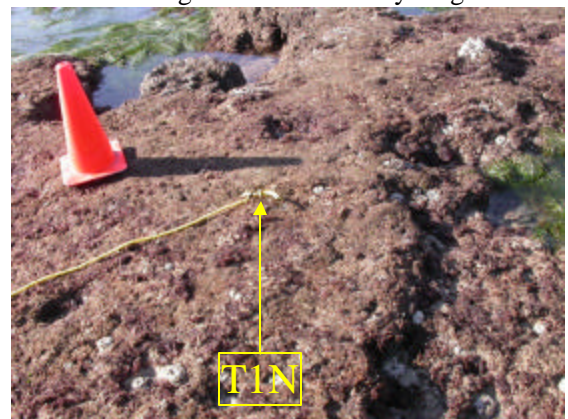
Taken in 1/06. Cone over bolt.



Taken in 1/06. Yellow tape marks bolt. Cone in foreground is not on anything.



Taken in 1/06. Cone over bolt.



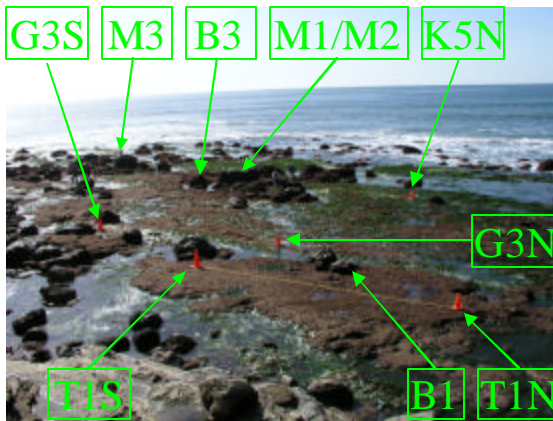
Taken in 1/06. Yellow tape marks bolt. Cone in background is not on anything.

T1C (237C)

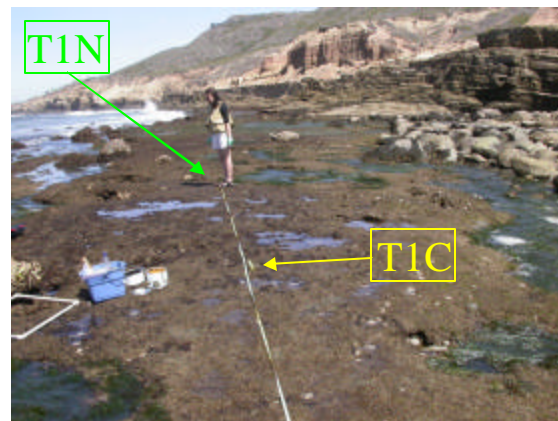
Target	Red Algal Turf
Type	Transect
Bolts	2 of 3, line
Coordinates	32.669714°N 117.245587°W
Height	No Data

Description: Reinstalled in March 2006. A long stainless bolt 5m from north bolt in line with other bolts.

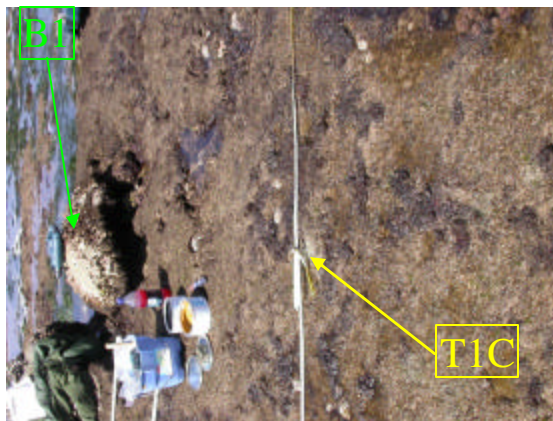
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1N	237N	5.02	170
G3N	238N	5.97	40



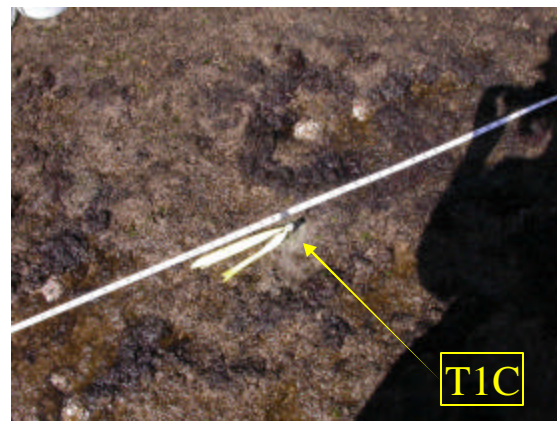
Taken in 1/06. Center bolt not marked, but shows location of transect.



Taken in 3/06. Yellow tape on center bolt. Volunteer is on northern bolt.



Taken in 3/06. Yellow tape on bolt.



Taken in 3/06. Yellow tape on bolt.

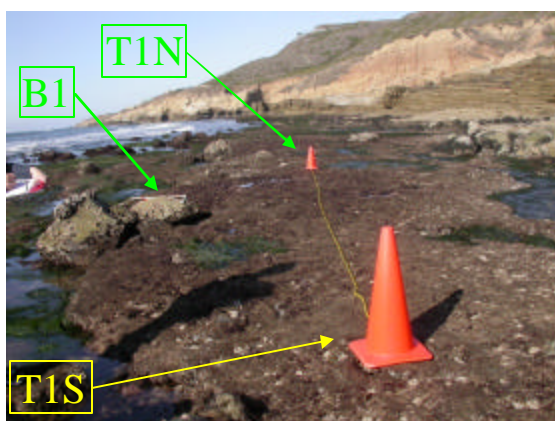
T1S (237S)

Target	Red Algal Turf
Type	Transect
Bolts	3 of 3, line
Coordinates	32.669670°N 117.245590°W
Height	19.22 in.

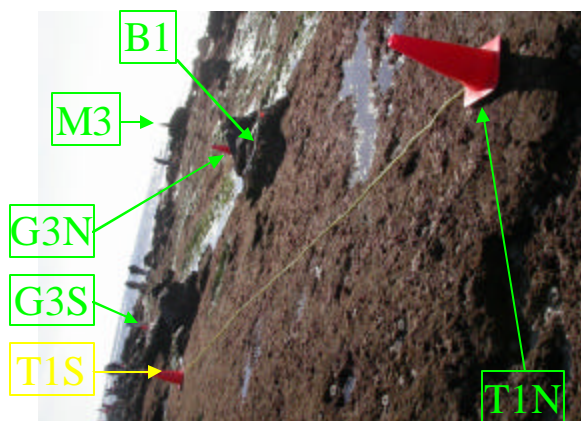
Description: Old copper bolt on the first ledge from the cliff. This is directly off the indent in the cliff.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	284	31.13	353
B1 (LR)	286	5.49	140
B2 (LL)	299	5.55	8
Po1 (LL)	276N	9.32	299

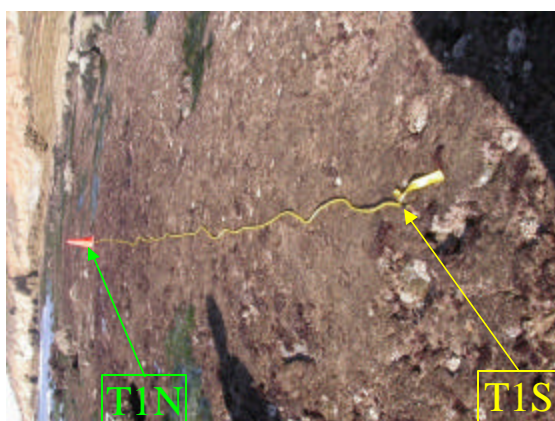
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1N	237N	10.06	171
G3N	238N	4.40	92
G3C	238C	5.38	30
G3S	238S	9.40	10



Taken in 1/06. Cone on bolt.



Taken in 3/06. Cone on bolt.



Taken in 3/06. Yellow tape on bolt.



Taken in 3/06. Yellow tape on bolt.

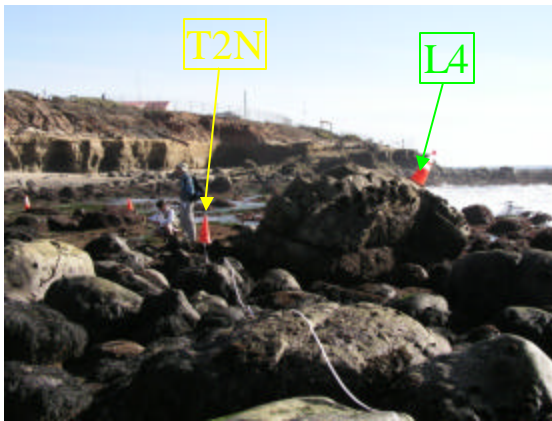
T2N (210N)

Target	Red Algal Turf
Type	Transect
Bolts	1 of 3, line
Coordinates	32.669095°N 117.245395°W
Height	14.47 in.

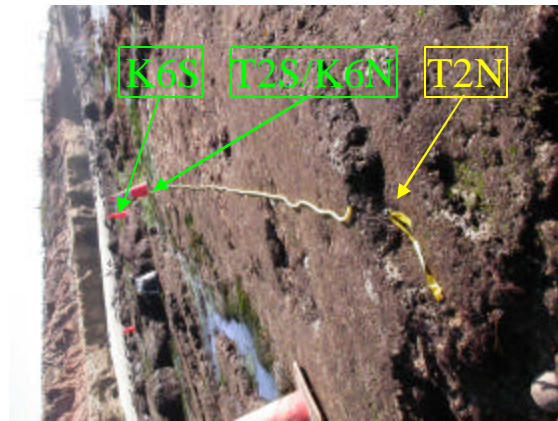
Description: Stainless bolt of medium height located on a small ledge a few inches below the rest of the transect. Transect runs approximately parallel to the ridge.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	283	21.22	137
L4	282	5.24	92
L5	279	12.52	224
L6	277	17.45	246
Pe5(LL)	287	11.21	151

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2S	210S	9.81	316
G4N	211N	17.86	280
G4S	211S	24.15	301
K6N	212N	9.81	316



Taken in 1/06. Cone on bolt. Transect line in foreground does not mark anything.



Taken in 1/06. Yellow tape on bolt. Cone to the left of bolt does not mark anything.



Taken in 1/06. Yellow tape on bolt. Cone does not mark anything.
Last Update: Jun-06



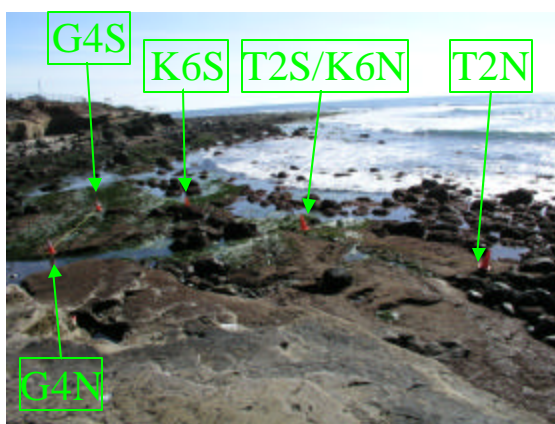
Taken in 1/06. Yellow tape on bolt.

T2C (210C)

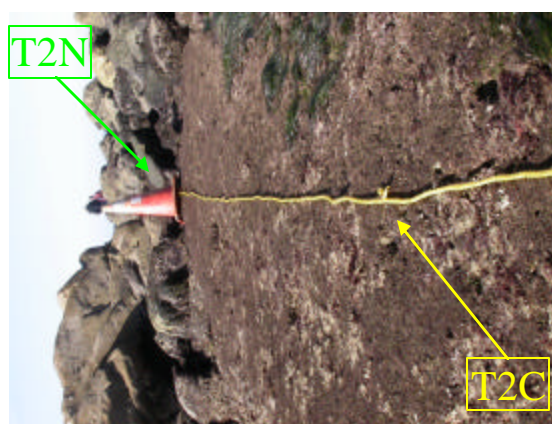
Target	Red Algal Turf
Type	Transect
Bolts	2 of 3, line
Coordinates	32.669055°N 117.245368°W
Height	No Data

Description: Old copper bolt due west of L6.

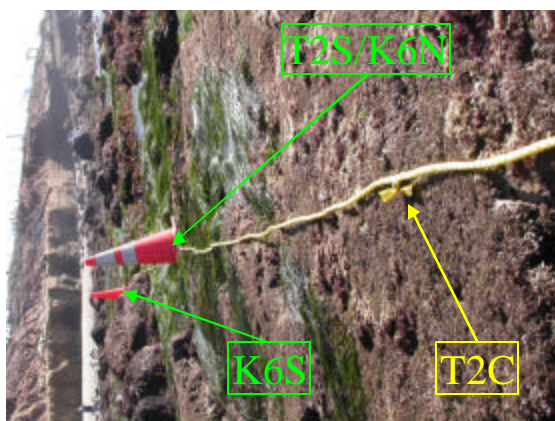
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	282	10.20	110
L5	279	13.38	205
L6	277	15.79	234
T2S	210S	4.85	316
K6N	212N	4.85	316



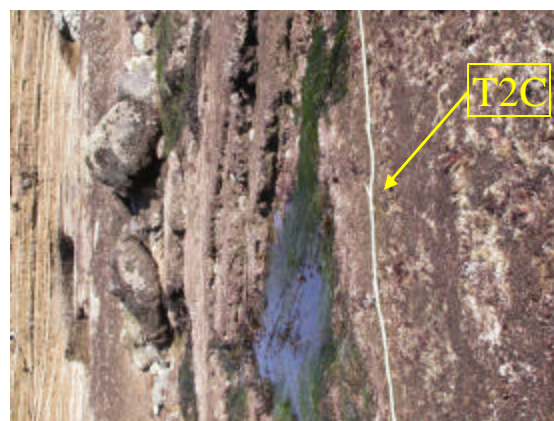
Taken in 1/06. Center bolt not marked, but location of transect is.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.

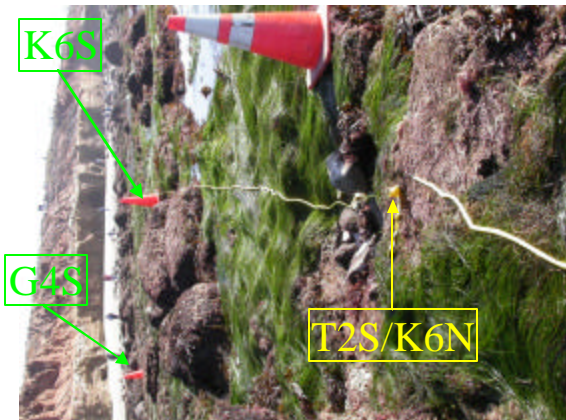
T2S (210S)

Target	Red Algal Turf
Type	Transect
Bolts	3 of 3, line
Coordinates	32.669022°N 117.245342°W
Height	8.22 in.

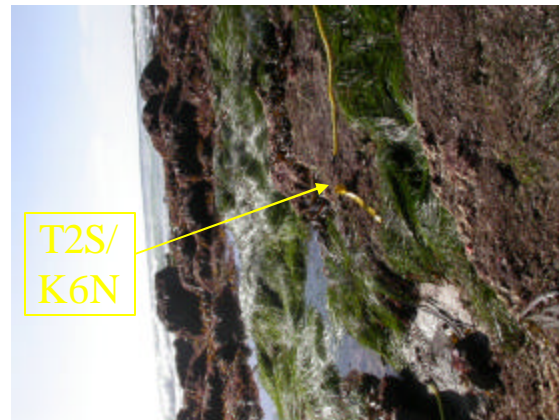
Description: This bolt is shared with K6N. Bolt is at edge of ridge. It is stainless steel and long, next to an old copper bolt that used to mark this transect. It is on the ridge furthest from the entrance path. The transect runs approximately parallel to the ridge.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	282	14.80	120
L5	212S	15.77	185
L6	277	15.66	215
T2N	210N	9.81	136
T2C	210C	4.85	136

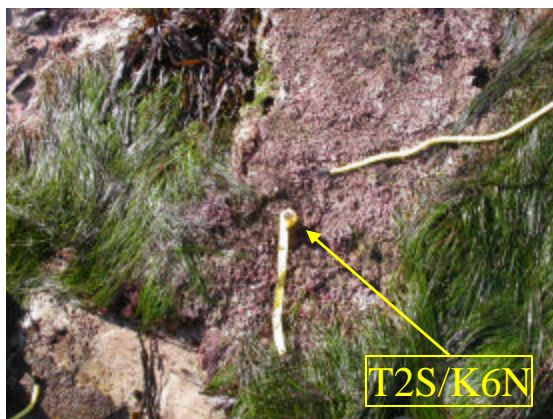
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	211N	11.27	250
G4S	211S	14.79	293
K6C	212C	6.29	310
K6S	212S	10.19	311



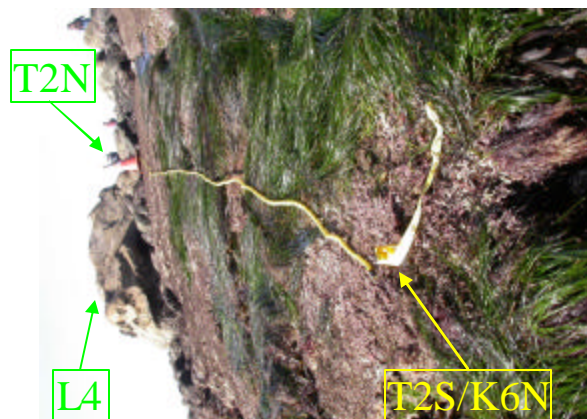
Taken in 1/06. Tape on bolt, which is both T2S and K6N. Cone to right marks nothing.



Taken in 1/06. Tape on bolt, which is both T2S and K6N.



Taken in 1/06. Tape on bolt, which is both T2S and K6N.



Taken in 1/06. Tape on bolt, which is both T2S and K6N.

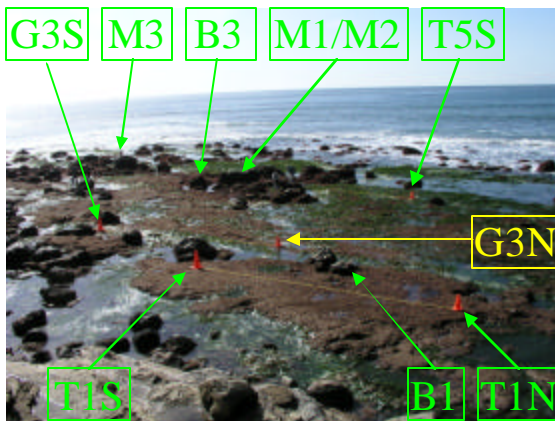
G3N (238N)

Target	Surfgrass
Type	Transect
Bolts	1 of 3, line
Coordinates	32.669669°N 117.245651°W
Height	14.97 in.

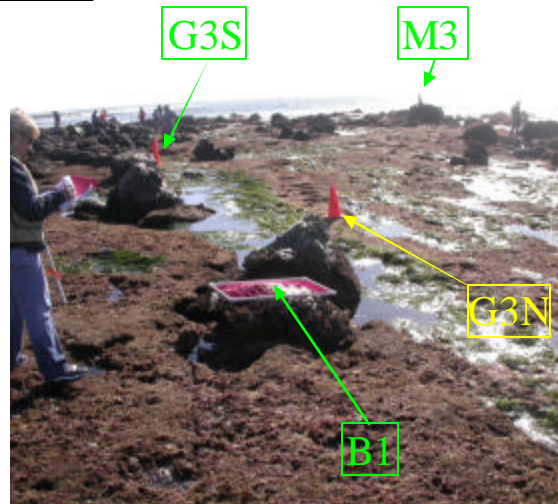
Description: Almost due west of T1s. Transect goes over smaller boulder and onto second ledge. Short, stainless bolt.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	284	32.31	346
B1(LR)	286	4.15	193
B2(LL)	299	6.75	327
Po1(LL)	276N	13.30	291
T1N	237N	9.93	196
T1C	237C	5.97	220
T1S	237S	4.40	272

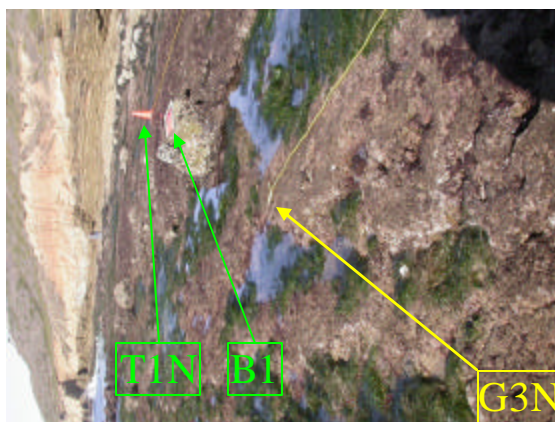
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3C	238C	4.99	345
G3S	238S	10.10	341
K5N	236N	13.43	88
K5S	236S	16.95	50



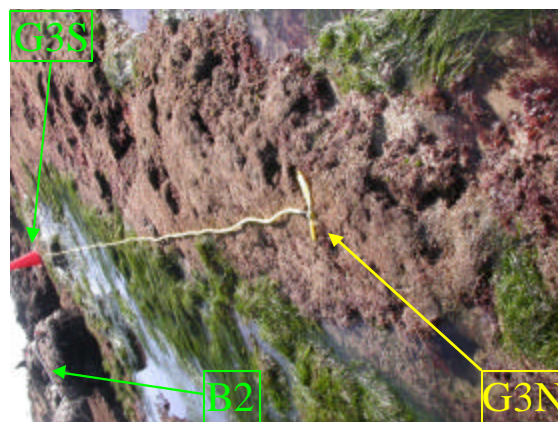
Taken in 1/06. Cone on bolt.



Taken in 1/06. Cone on bolt.



Taken in 1/06. Yellow tape on bolt.



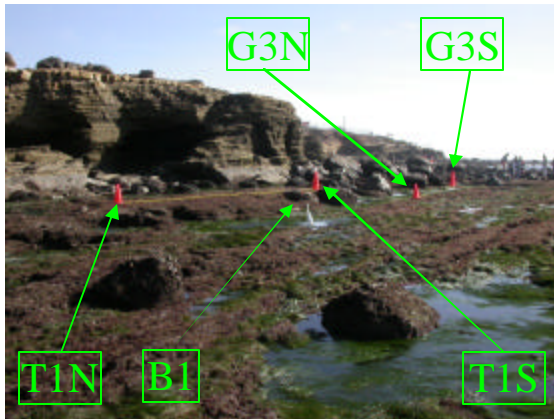
Taken in 1/06. Yellow tape on bolt.

G3C (238C)

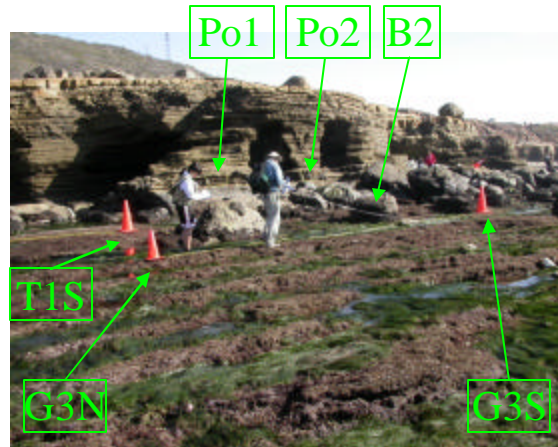
Target	Surfgrass
Type	Transect
Bolts	2 of 3, line
Coordinates	32.669628°N 117.245635°W
Height	No Data

Description: Bolt is stainless and long. It is in a pool.

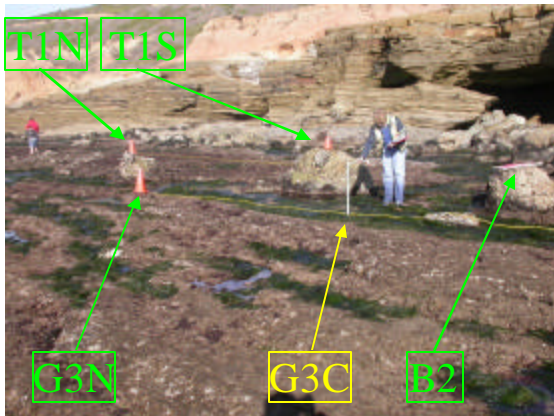
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B1	286	~9.1	180
B2	299	2.63	300
T1S	237S	5.38	210
G3N	238N	4.99	165
G3S	238S	5.11	161



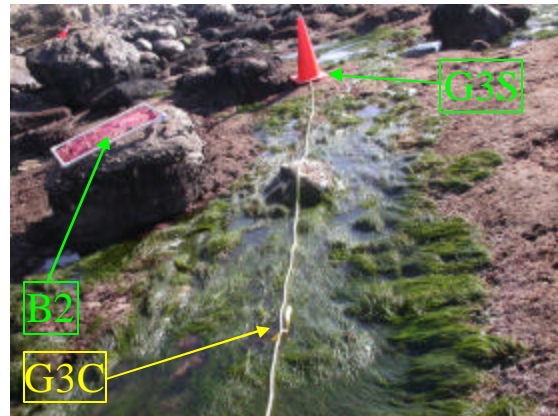
Taken in 1/06. Center bolt not marked, but the transect is.



Taken in 1/06. Center bolt not marked, but the whole transect is.



Taken in 1/06. Pat is pointing to center bolt.



Taken in 1/06. Center bolt marked with yellow tape.

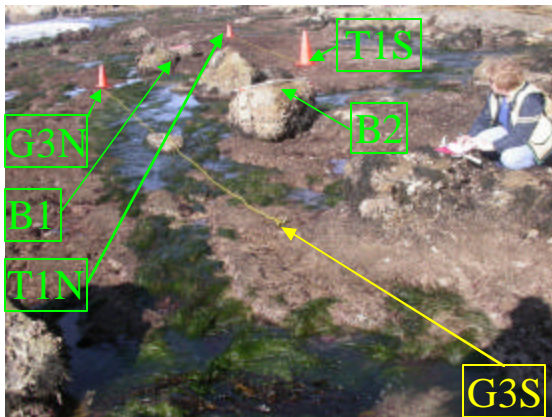
G3S (238S)

Target	Surfgrass
Type	Transect
Bolts	3 of 3, line
Coordinates	32.669584°N 117.245619°W
Height	14.97 in.

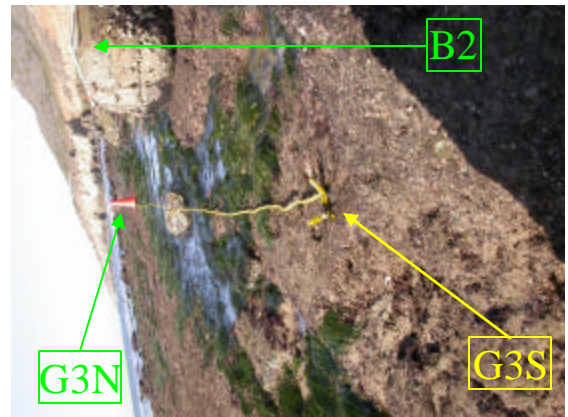
Description: Stainless bolt of medium height, at the base of a low, messy boulder.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B2	299	3.55	190
Po1	276N	10.70	235
Po2	276S	13.60	290
T1N	237N	19.20	170
T1S	237S	9.40	190

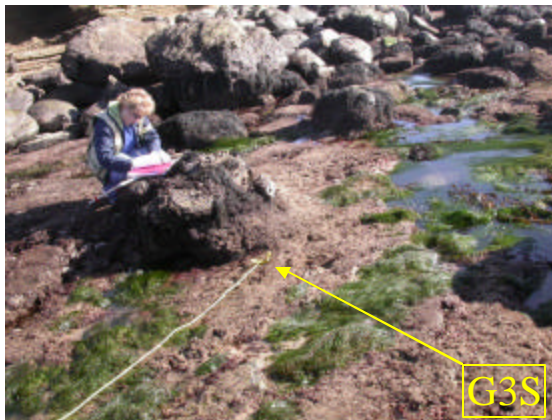
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	238N	10.10	161
G3C	238C	5.11	341
K5N	236N	18.85	119
K5C	236C	16.79	100
K5S	236S	16.26	86



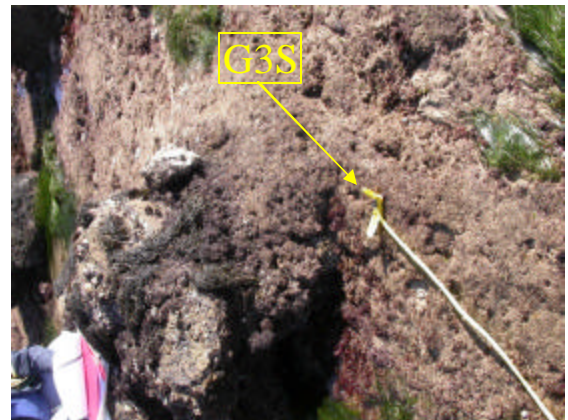
Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.

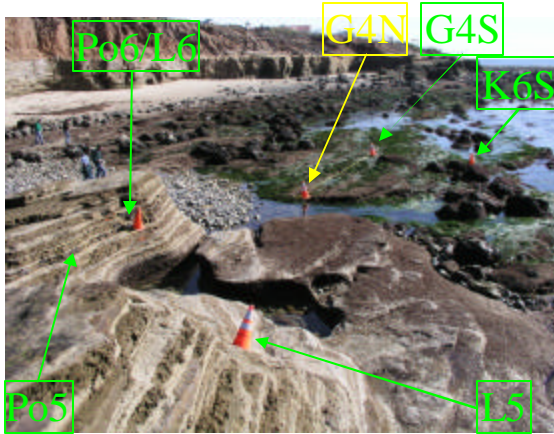
G4N (211N)

Target	Surfgrass
Type	Transect
Bolts	1 of 3, line
Coordinates	32.669037°N 117.245238°W
Height	-2.21 in.

Description: Low point on the edge of ridge due south of entrance path. A long zinc (rusted) bolt.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	282	23.17	100
L5	279	14.58	144
L6	277	8.77	171
Po6	278S	7.50	215
T2N	210N	17.60	100
T2S	210S	11.27	70

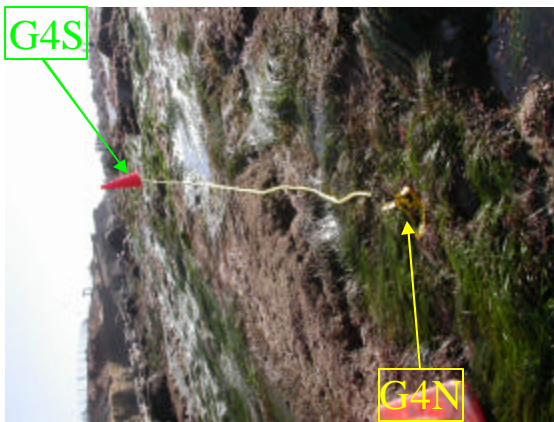
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4C	211C	5.95	345
G4S	211S	9.95	343
K6N	212N	11.27	75
K6S	212S	10.60	15



Taken in 1/06. Cone on bolt.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt. Cone in foreground does not mark anything.
Last Update: Jun-06



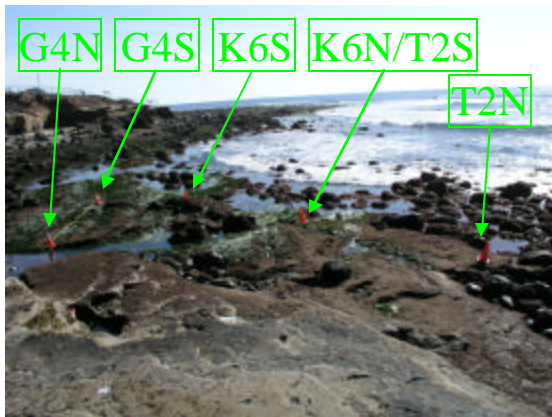
Taken in 1/06. Yellow tape on bolt.

G4C (211C)

Target	Surfgrass
Type	Transect
Bolts	2 of 3, line
Coordinates	32.668999°N 117.245228°W
Height	No Data

Description: Bolt was missing when photos taken in January 2006.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	211N	5.95	165
K6S	212S	6.28	45



Taken in 1/06. Center bolt not marked in this photo, but transect is. Bolt is missing and will need to be replaced.



Taken in 1/06. Center bolt not marked in this photo, but transect is. Bolt is missing and will need to be replaced.

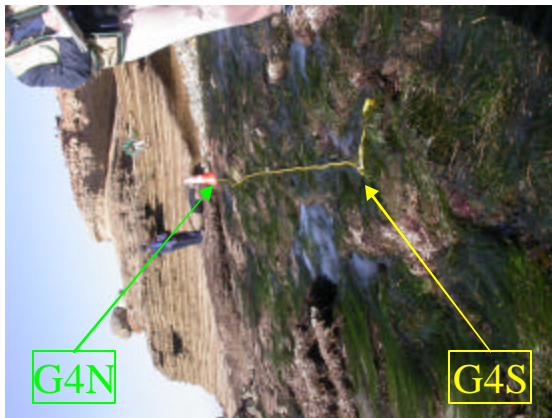
G4S (211S)

Target	Surfgrass
Type	Transect
Bolts	3 of 3, line
Coordinates	32.668959°N 117.245217°W
Height	10.22 in.

Description: A stainless steel, long bolt southeast from low broad boulder. Kind of in the middle of nowhere.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	282	28.85	115
L5	279	24.21	150
L6	277	18.52	166
T2N	210N	24.15	121
T2S	210S	14.79	113

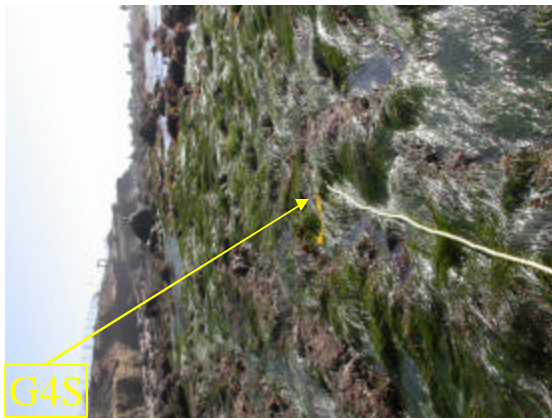
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	211N	9.95	163
K6N	212N	14.79	113
K6C	212C	9.18	95
K6S	212S	5.77	81



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.

Last Update: Jun-06

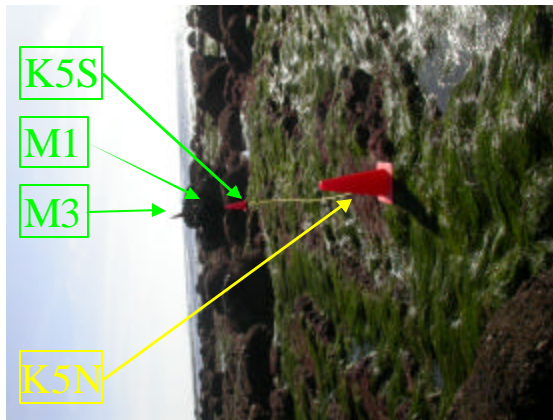
K5N (236N)

Target	Boa Kelp
Type	Transect
Bolts	1 of 3, line
Coordinates	32.669636°N 117.245798°W
Height	3.22 in.

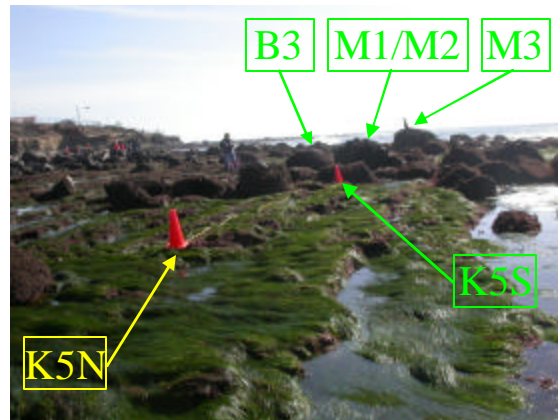
Description: About 2m southwest of a small boulder. Approximately parallel. If you draw a line between M1, M3, and K5S, it will intersect with K5N (see photo on upper left).

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B1 (LR)	286	15.20	251
M1 (UL)	298	13.52	356
T1N	237N	19.21	238

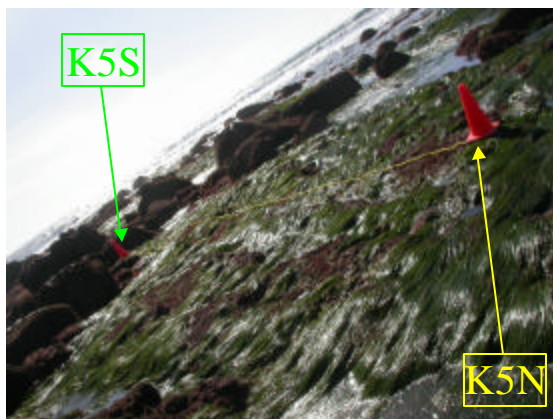
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	238N	13.43	268
G3S	238S	18.85	299
K5C	236C	5.03	355
K5S	236S	9.93	357



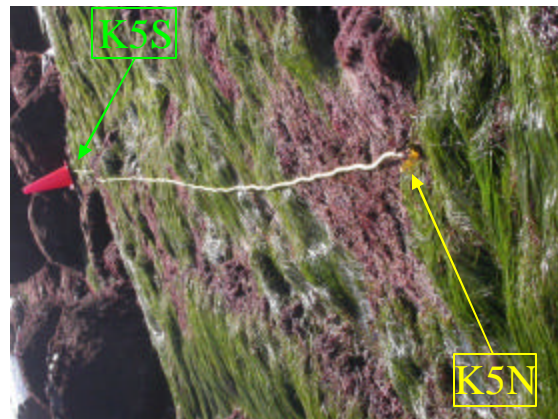
Taken in 1/06. Cone on bolt. Note the alignment of M3, M1, K5S and K5N.



Taken in 1/06. Cone on bolt.



Taken in 1/06. Cone on bolt.



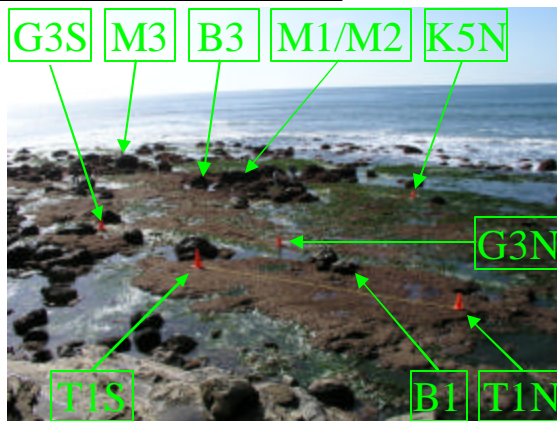
Taken in 1/06. Yellow tape on bolt.

K5C (236C)

Target	Boa Kelp
Type	Transect
Bolts	2 of 3, line
Coordinates	32.669591°N 117.245809°W
Height	No Data

Description: Bolt was missing during January 2006 while we were making this guide.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3S	238S	16.79	280
K5N	236N	5.03	175



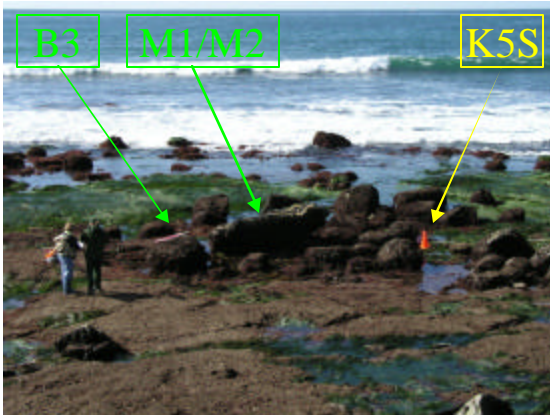
Taken in 1/06, when center bolt was missing.
This photo shows general area.

K5S (236S)

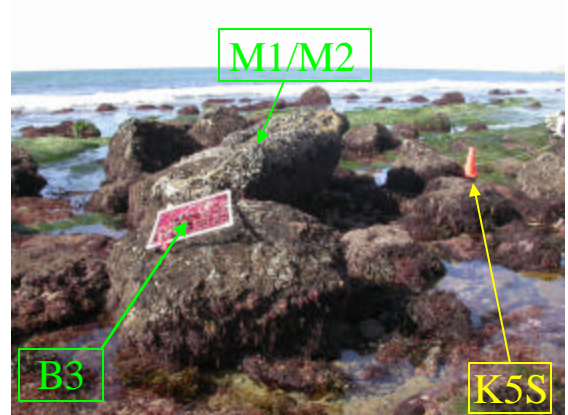
Target	Boa Kelp
Type	Transect
Bolts	3 of 3, line
Coordinates	32.669547°N 117.245819°W
Height	0.47 in.

Description: North of M1/M2, there are two small boulders. K5S is at the base of the northern of the two boulders.

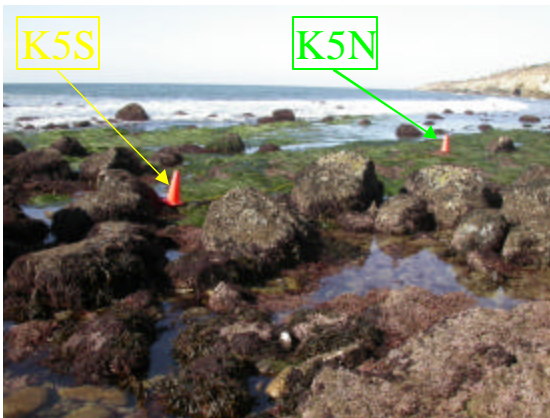
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	284	29.41	314
M1 (UL)	298	3.64	351
T1N	237	25.50	216
G3N	238N	16.95	230
G3S	238S	16.26	266
K5N	236N	9.93	177



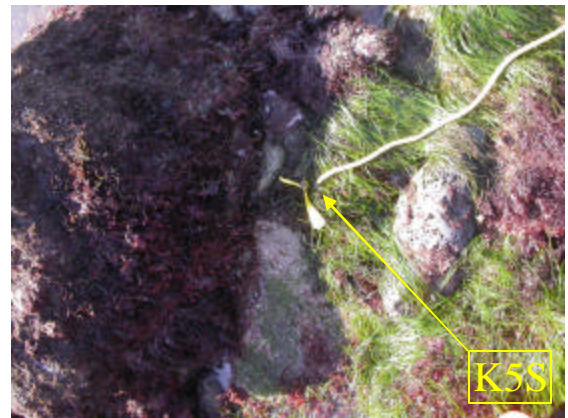
Taken in 1/06 from cliffs above. Cone on bolt.



Taken in 1/06. Cone on bolt.



Taken in 1/06. Cone on bolt.



Taken in 1/06. Yellow tape on bolt.

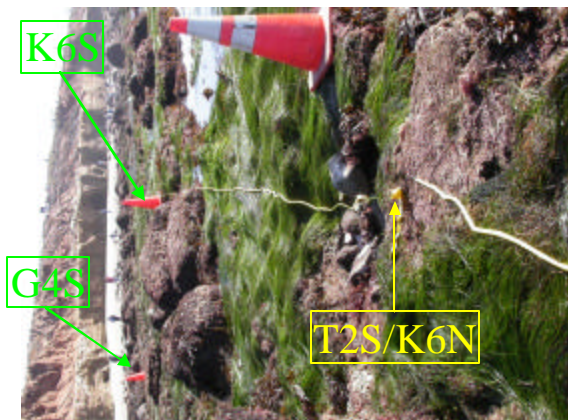
K6N (212N)

Target	Boa Kelp
Type	Transect
Bolts	1 of 3, line
Coordinates	32.669022°N 117.245342°W
Height	8.22 in.

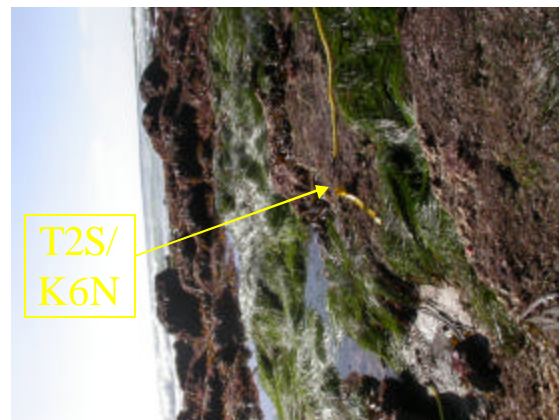
Description: This bolt is shared with T2N. Bolt is at edge of ridge. It is stainless steel and long, next to an old copper bolt that used to mark this transect. It is on the ridge furthest from the entrance path. The transect runs along a cluster of boulders down into a pool and up along a ridge.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	282	14.80	120
L5	212S	15.77	185
L6	277	15.66	35
T2N	210N	9.81	136
T2C	210C	4.85	136

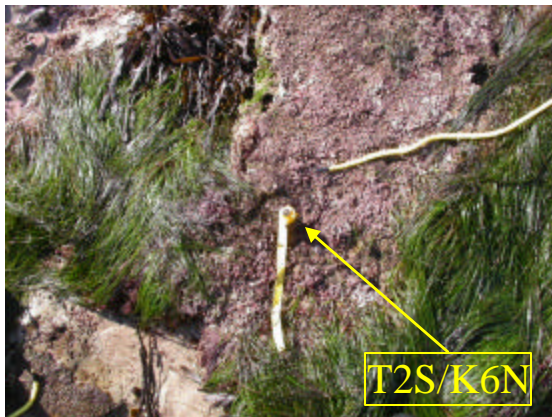
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	211N	11.27	250
G4S	211S	14.79	293
K6C	212C	6.29	310
K6S	212S	10.19	311



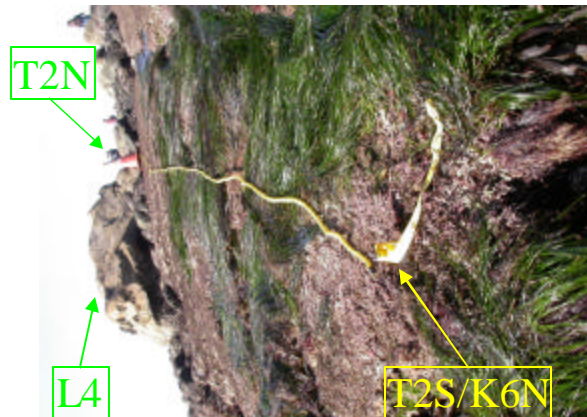
Taken in 1/06. Tape on bolt, which is both T2S and K6N. Cone to right marks nothing.



Taken in 1/06. Tape on bolt, which is both T2S and K6N.



Taken in 1/06. Tape on bolt, which is both T2S and K6N.
Last Update: Jun-06



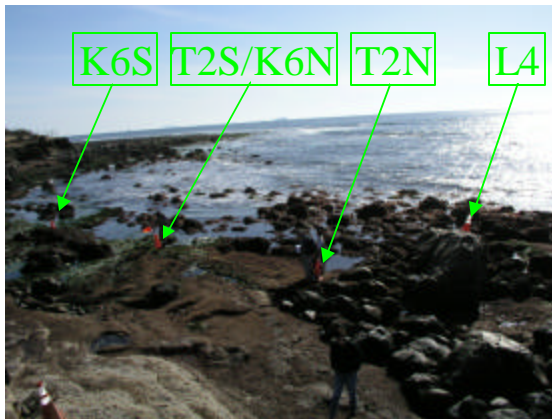
Taken in 1/06. Tape on bolt, which is both T2S and K6N.

K6C (212C)

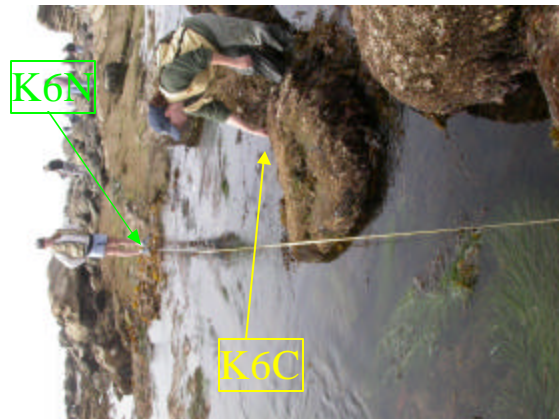
Target	Boa Kelp
Type	Transect
Bolts	2 of 3, line
Coordinates	32.668985°N 117.245312°W
Height	No Data

Description: The transect runs along a cluster of boulders down into a pool and up along a ridge. Center bolt is about 0.5m east of the line. It is a medium stainless bolt on a short boulder in between 2 larger boulders.

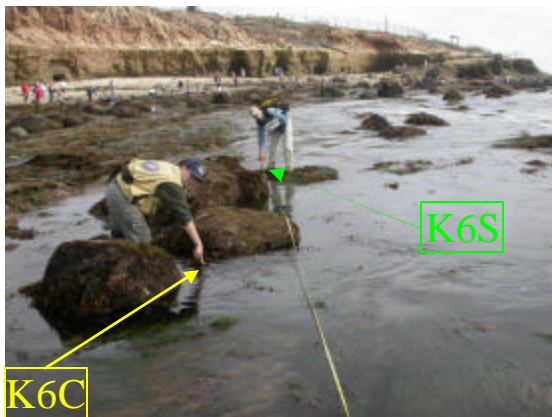
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2S	210S	6.29	130
G4S	211S	9.18	275
K6N	212N	6.29	130



Taken in 1/06. Center bolt not marked, but whole transect is.



Taken in 3/06. Carmen pointing at center bolt, Hope at northern bolt.



Taken in 3/06. Carmen pointing at center bolt, Mysti pointing at southern bolt.



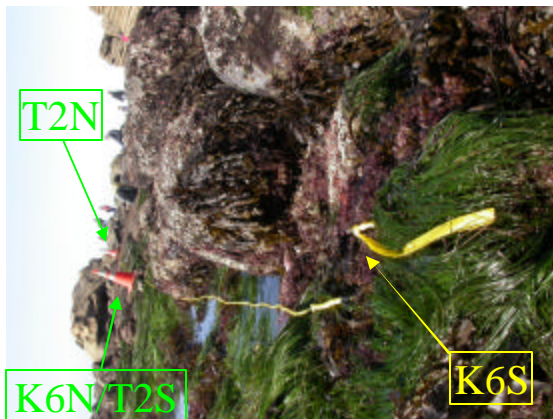
Taken in 3/06. Carmen pointing at center bolt.

K6S (212S)

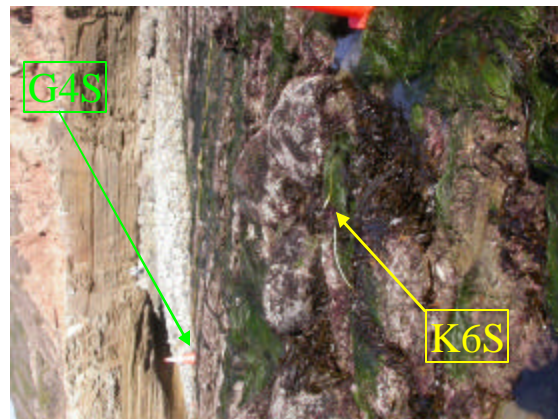
Target	Boa Kelp
Type	Transect
Bolts	3 of 3, line
Coordinates	32.668950°N 117.245279°W
Height	6.47 in.

Description: On a low flat boulder surrounded by small boulders. The transect runs along a cluster of boulders down into a pool and up along a ridge.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	282	24.27	122
L6	277	19.10	180
T2S	210S	10.19	131
G4N	211N	10.60	195
G4C	211C	6.28	225
G4S	211S	5.77	261
K6N	212N	10.19	131



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt. Orange cone on edge of frame does not mark anything.

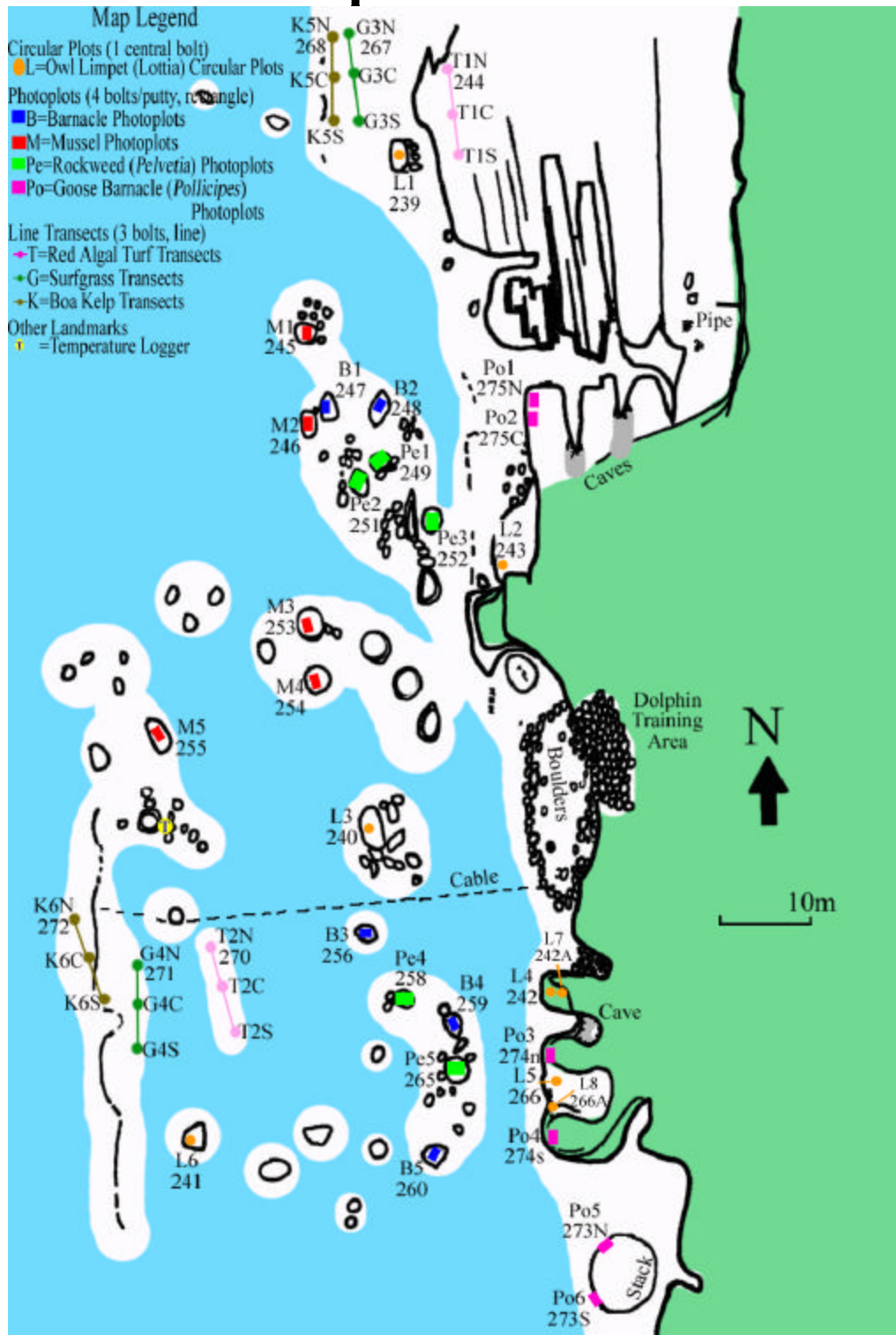


Taken in 1/06. Bolt marked with yellow tape.
Last Update: Jun-06



Taken in 1/06. Bolt marked with yellow tape.

Map of Zone II



Last Update: Jun-06

SITE LOCATIONS (ZONE II)								
Plot ID	Site ID	Plot Type	Target Species	Bolt	Lat. (°N)	Long. (°W)	Std. Dev.	Tidal Height (in above MLLW)
L1	239	Circular Plot	Owl Limpets		32.66819	-117.245128	0.120667	46.14
L2	243	Circular Plot	Owl Limpets		32.667736	-117.245068	n/a	43.64
L3	240	Circular Plot	Owl Limpets		32.667439	-117.245159	0.099441	38.39
L4	242	Circular Plot	Owl Limpets		32.667297	-117.244944	0.095125	29.98
L5	266	Circular Plot	Owl Limpets		32.667191	-117.24492	0.119911	42.26
L6	241	Circular Plot	Owl Limpets		32.667117	-117.24536	0.13157	29.64
L7	242A	Circular Plot	Owl Limpets		ND	ND	n/a	48.26
L8	266A	Circular Plot	Owl Limpets		ND	ND	n/a	70.26
B1	247	Photoplot	Barnacles		32.66793	-117.245276	0.098347	21.39
B2	248	Photoplot	Barnacles		32.667938	-117.24522	0.18427	33.14
B3	256	Photoplot	Barnacles		32.667326	-117.245159	0.144025	16.76
B4	259	Photoplot	Barnacles		32.667239	-117.245046	0.118495	16.92
B5	260	Photoplot	Barnacles		32.667113	-117.245055	0.080409	39.76
M1	245	Photoplot	Mussels		32.668002	-117.245313	0.074474	17.64
M2	246	Photoplot	Mussels		32.667916	-117.245302	0.081164	ND
M3	253	Photoplot	Mussels		32.66771	-117.245264	0.127676	22.64
M4	254	Photoplot	Mussels		32.667659	-117.245264	0.067801	23.39
M5	255	Photoplot	Mussels		32.667533	-117.245419	n/a	19.89
Pe1	249	Photoplot	Rockweed		32.667887	-117.245181	0.212161	6.64
Pe2	251	Photoplot	Rockweed		32.667863	-117.245207	0.147188	26.14
Pe3	252	Photoplot	Rockweed		32.6678	-117.245139	0.054098	14.39
Pe4	258	Photoplot	Rockweed		32.667253	-117.2451	0.080494	13.76
Pe5	265	Photoplot	Rockweed		32.667203	-117.24502	0.087944	15.59
Po1	275N	Photoplot	Goose Barnacles		32.667895	-117.245014	0.148883	58.39
Po2	275C	Photoplot	Goose Barnacles		32.667881	-117.245016	0.094434	54.64
Po3	274N	Photoplot	Goose Barnacles		32.667235	-117.244918	0.182115	41.26
Po4	274S	Photoplot	Goose Barnacles		32.667157	-117.244922	0.094743	69.76
Po5	273N	Photoplot	Goose Barnacles		32.667049	-117.244838	0.163687	62.51
Po6	273S	Photoplot	Goose Barnacles		32.667007	-117.244824	0.141477	64.26
T1	244	Line Transect	Red Algal Turf	N	32.668294	-117.245069	0.074744	2.14
				C	32.668251	-117.245063	0.097741	9.14
				S	32.668207	-117.245056	0.153475	15.14
T2	270	Line Transect	Red Algal Turf	N	32.667307	-117.245346	0.072159	5.39
				C	32.667261	-117.245331	0.114567	3.64
				S	32.667223	-117.245314	0.057492	4.89
G3	267	Line Transect	Surfgrass	N	32.668326	-117.245192	n/a	-4.87
				C	32.668281	-117.245188	n/a	ND
				S	32.668234	-117.245181	n/a	-3.37
G4	271	Line Transect	Surfgrass	N	32.667277	-117.245433	n/a	3.39
				C	32.667233	-117.245426	n/a	ND
				S	32.667187	-117.245418	n/a	3.14
K5	268	Line Transect	Boa Kelp	N	32.668323	-117.245207	n/a	-4.12
				C	32.668277	-117.245208	n/a	-4.37
				S	32.668232	-117.245208	n/a	-1.62
K6	272	Line Transect	Boa Kelp	N	32.667314	-117.245521	n/a	-0.87
				C	32.667275	-117.245496	n/a	ND
				S	32.667236	-117.245469	n/a	4.64

Last Update: Jun-06

Interplot Measurements

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
L1	239	L2	243	51.24	338
L1	239	B2	248	29.10	10
L1	239	Po1	275N	34.07	330
L1	239	T1N	244N	12.95	195
L1	239	T1C	244C	6.90	235
L1	239	T1S	244S	6.80	240
L1	239	G3N	267N	14.70	140
L1	239	G3S	267S	5.20	110
L1	239	K5N	268N	15.00	130
L1	239	K5S	268S	8.08	95
L2	243	L1	239	51.24	158
L2	243	Pe3(LL)	252	11.33	123
L3	240	B3	256	12.65	360
L3	240	M4	254	25.69	140
L3	240	M5	255	26.20	110
L3	240	T2N	270N	22.95	40
L3	240	T2C	270C	25.60	27
L3	240	T2S	270S	28.16	21
L3	240	K6N	272N	35.31	61
L4	242	L5	266	10.21	335
L4	242	L7	242A	2.00	260
L4	242	L8	266A	12.40	338
L4	242	B3	256	21.27	80
L4	242	B4	259	11.40	40
L4	242	Po3	274N	7.63	360
L5	266	L4	242	10.21	155
L5	266	L7	242A	10.60	182
L5	266	L8	266A	2.30	347
L5	266	B4	259	12.45	100
L5	266	Po3	274N	2.80	180
L5	266	Po4	274S	7.10	NA
L6	241	T2N	270N	21.75	172
L6	241	T2C	270C	16.64	190
L6	241	T2S	270S	12.90	187
L6	241	G4N	271N	21.70	165
L6	241	G4C	271C	16.83	155
L6	241	G4S	271S	12.95	140
L6	241	K6N	272N	30.40	136
L6	241	K6C	272C	24.83	150
L6	241	K6S	272S	20.10	150
L7	242A	L4	242	2.00	80
L7	242A	L5	266	10.60	2
L7	242A	Pe5	265	14.50	20
L7	242A	Po3	274N	8.65	348
L8	266A	L4	242	12.40	158
L8	266A	L5	266	2.30	167
L8	266A	Pe5	265	10.00	84
L8	266A	Po3	274N	2.00	184

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
B1	247	B2	248	5.71	270
B1	247	M1	245	9.09	145
B1	247	M2	246	3.00	90
B2	248	L1	239	29.10	190
B2	248	B1	247	5.71	90
B2	248	M1	245	11.85	135
B2	248	Pe1	249	6.55	360
B3	256	L3	240	12.65	180
B3	256	L4	242	21.27	260
B3(UL)	256	T2N	270N	17.14	70
B3(UL)	256	T2C	270C	17.15	52
B3	256	T2S	270S	17.98	45
B4	259	L4	242	11.40	220
B4	259	L5	266	12.45	280
B4	259	Pe4	258	5.69	110
B4	259	Pe5	265	5.29	320
B4	259	Po3	274N	12.00	290
B5	260	Pe5	265	10.75	190
B5	260	Po4	274S	13.90	270
B5	260	Po5	273N	23.88	270
B5	260	Po6	273S	25.96	295
M1	245	B1	247	9.09	325
M1	245	B2	248	11.85	315
M1	245	M2	246	9.08	340
M2	246	B1	247	3.00	270
M2	246	M1	245	9.08	160
M2	246	M3	253	23.57	360
M2	246	Pe2	251	11.91	260
M3	253	M2	246	23.57	180
M3	253	M4	254	6.29	360
M4	254	L3	240	25.69	320
M4	254	M3	253	6.29	180
M4	254	M5	255	19.65	70
M5	255	L3	240	26.20	290
M5	255	M4	254	19.65	250
M5	255	T2N	270N	26.29	390
M5	255	G4N	271N	26.70	5
M5(UL)	255	K6N	272N	22.92	13

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
Pe1	249	B2	248	6.55	180
Pe1	249	Pe2	251	3.25	45
Pe1	249	Pe3	252	11.44	325
Pe2	251	M2	246	11.91	80
Pe2	251	Pe1	249	3.25	225
Pe2	251	Pe3	252	9.54	315
Pe3(LL)	252	L2	243	11.33	303
Pe3	252	Pe1	249	11.44	145
Pe3	252	Pe2	251	9.54	135
Pe3	252	Po1	275N	19.08	225
Pe4	258	B4	259	5.69	290
Pe4	258	T2N	270N	23.76	105
Pe4	258	T2C	270C	21.56	90
Pe4	258	T2S	270S	19.98	80
Pe5	265	L7	242A	14.50	200
Pe5	265	L8	266A	10.00	264
Pe5	265	B4	259	5.29	140
Pe5	265	B5	260	10.75	10
Pe5	265	Po3	274N	10.60	270
Po1	275N	L1	239	34.07	150
Po1	275N	Pe3	252	19.08	45
Po1	275N	Po2	275C	1.26	320
Po2	275C	Po1	275N	1.26	140
Po3	274N	L4	242	7.63	180
Po3	274N	L5	266	2.80	360
Po3	274N	L7	242A	8.65	168
Po3	274N	L8	266A	2.00	4
Po3	274N	B4	259	12.00	110
Po3	274N	Pe5	265	10.60	90
Po3	274N	Po4	274S	8.84	~350
Po4	274S	L5	266	7.10	NA
Po4	274S	B5	260	13.90	90
Po4	274S	Po3	274N	8.84	~170
Po4	274S	Po5	273N	14.75	340
Po5	273N	B5	260	23.88	90
Po5	273N	Po4	274S	14.75	160
Po5	273N	Po6	273S	5.02	~330
Po6	273S	B5	260	25.96	115
Po6	273S	Po5	273N	5.02	~150

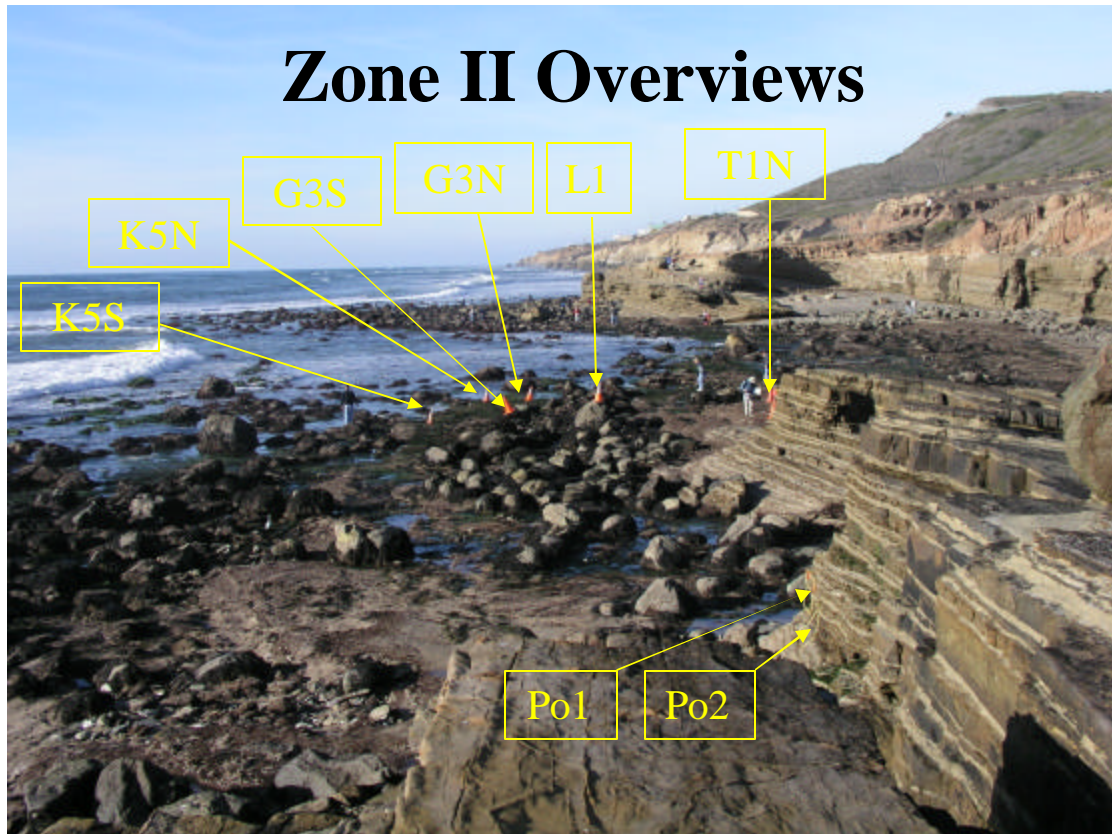
Interplot Measurements

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
T1N	244N	L1	239	12.95	15
T1N	244N	T1C	244C	5.01	345
T1N	244N	T1S	244S	9.80	342
T1N	244N	G3N	267N	12.00	110
T1C	244C	L1	239	6.90	55
T1C	244C	T1N	244N	5.01	165
T1C	244C	T1S	244S	4.80	342
T1S	244S	L1	239	6.80	60
T1S	244S	T1N	244N	9.80	162
T1S	244S	T1C	244C	4.80	162
T1S	244S	G3S	267S	10.97	85
T2N	270N	L3	240	22.95	220
T2N	270N	L6	241	21.75	352
T2N	270N	B3(UL)	256	17.14	250
T2N	270N	M5	255	26.29	210
T2N	270N	Pe4	258	23.76	285
T2N	270N	T2C	270C	5.44	345
T2N	270N	T2S	270S	10.09	328
T2N	270N	G4N	271N	8.24	71
T2N	270N	G4C	271C	10.05	50
T2N	270N	G4S	271S	13.60	25
T2N	270N	K6N	272N	16.88	95
T2N	270N	K6S	272S	13.20	58
T2C	270C	L3	240	25.60	207
T2C	270C	L6	241	16.64	10
T2C	270C	B3(UL)	256	17.15	232
T2C	270C	Pe4	258	21.56	270
T2C	270C	T2N	270N	5.44	165
T2C	270C	T2S	270S	4.70	143
T2C	270C	G4N	271N	10.40	115
T2C	270C	G4C	271C	9.36	80
T2C	270C	G4S	271S	11.16	60
T2S	270S	L3	240	28.16	201
T2S	270S	L6	241	12.90	7
T2S	270S	B3	256	17.98	225
T2S	270S	Pe4	258	19.98	260
T2S	270S	T2N	270N	10.09	148
T2S	270S	T2C	270C	4.70	323
T2S	270S	G4N	271N	14.20	130
T2S	270S	G4C	271C	11.67	105
T2S	270S	G4S	271S	11.70	70
T2S	270S	K6N	272N	24.20	115
T2S	270S	K6S	272S	16.24	94

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
G3N	267N	L1	239	14.70	320
G3N	267N	T1N	244N	12.00	290
G3N	267N	G3C	267C	4.96	339
G3N	267N	G3S	267S	10.64	338
G3N	267N	K5N	268N	1.97	52
G3N	267N	K5C	268C	6.05	360
G3N	267N	K5S	268S	10.88	356
G3C	267C	G3N	267N	4.96	159
G3C	267C	K5N	268N	4.93	135
G3S	267S	L1	239	5.20	290
G3S	267S	T1S	244S	10.97	265
G3S	267S	G3N	267N	10.64	158
G3S	267S	K5S	268S	2.90	75
G4N	271N	L6	241	21.70	345
G4N	271N	M5	255	26.70	185
G4N	271N	T2N	270N	8.24	251
G4N	271N	T2C	270C	10.40	295
G4N	271N	T2S	270S	14.20	310
G4N	271N	G4C	271C	5.12	355
G4N	271N	G4S	271S	9.70	347
G4N	271N	K6N	272N	9.58	135
G4N	271N	K6C	272C	5.71	105
G4N	271N	K6S	272S	5.54	45
G4C	271C	L6	241	16.83	335
G4C	271C	T2N	270N	10.05	230
G4C	271C	T2C	270C	9.36	260
G4C	271C	T2S	270S	11.67	285
G4C	271C	G4N	271N	5.12	175
G4C	271C	G4S	271S	4.52	347
G4C	271C	K6N	272N	13.63	145
G4C	271C	K6C	272C	8.41	135
G4C	271C	K6S	272S	4.55	105
G4S	271S	L6	241	12.95	320
G4S	271S	T2N	270N	13.60	205
G4S	271S	T2C	270C	11.16	240
G4S	271S	T2S	270S	11.70	250
G4S	271S	G4N	271N	9.70	167
G4S	271S	G4C	271C	4.52	347
G4S	271S	K6N	272N	17.46	155
G4S	271S	K6C	272C	11.93	155
G4S	271S	K6S	272S	7.17	150

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
K5N	268N	L1	239	15.00	310
K5N	268N	G3N	267N	1.97	232
K5N	268N	G3C	267C	4.93	315
K5N	268N	K5C	268C	5.12	345
K5N	268N	K5S	268S	10.10	341
K5C	268C	G3N	267N	6.05	180
K5C	268C	K5N	268N	5.12	165
K5C	268C	K5S	268S	5.00	341
K5S	268S	L1	239	8.08	275
K5S	268S	G3N	267N	10.88	170
K5S	268S	G3S	267S	2.90	255
K5S	268S	K5N	268N	10.10	161
K5S	268S	K5C	268C	5.00	161
K6N	272N	L3	240	35.31	241
K6N	272N	L6	241	30.40	310
K6N	272N	M5(UL)	255	22.92	195
K6N	272N	T2N	270N	16.88	275
K6N	272N	T2S	270S	24.20	295
K6N	272N	G4N	271N	9.58	315
K6N	272N	G4C	271C	13.63	325
K6N	272N	G4S	271S	17.46	335
K6N	272N	K6C	272C	5.61	340
K6N	272N	K6S	272S	10.45	325
K6C	272C	L6	241	24.83	330
K6C	272C	G4N	271N	5.71	285
K6C	272C	G4C	271C	8.41	315
K6C	272C	G4S	271S	11.93	335
K6C	272C	K6N	272N	5.61	160
K6C	272C	K6S	272S	4.91	327
K6S	272S	L6	241	20.10	330
K6S	272S	T2N	270N	13.20	238
K6S	272S	T2S	270S	16.24	275
K6S	272S	G4N	271N	5.54	225
K6S	272S	G4C	271C	4.55	285
K6S	272S	G4S	271S	7.17	330
K6S	272S	K6N	272N	10.45	145
K6S	272S	K6C	272C	4.91	147

Zone II Overviews



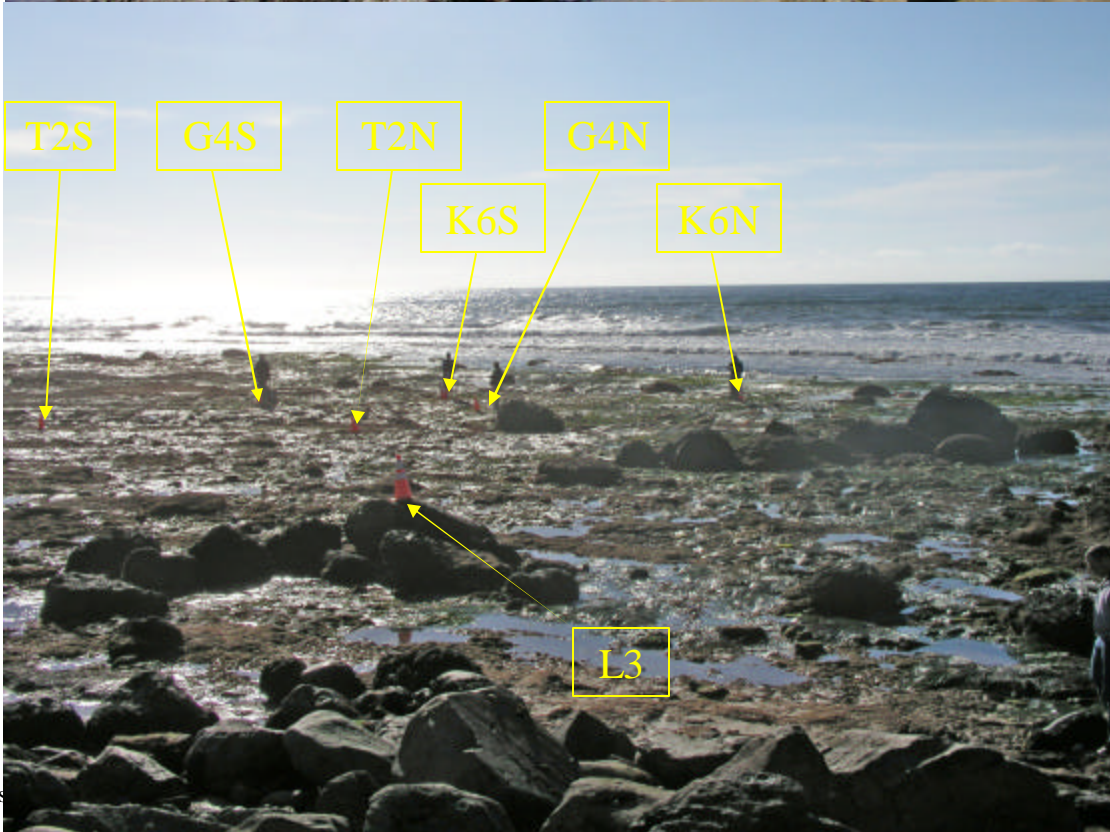
Zone II Overviews



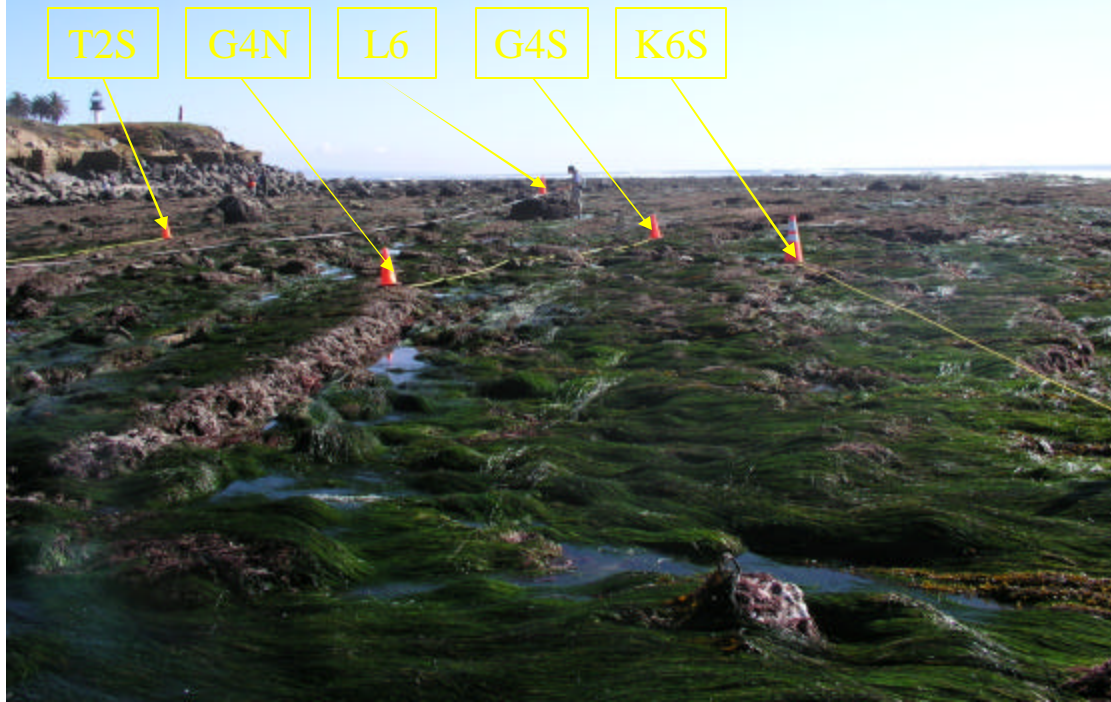
Zone II Overviews



Zone II Overviews



Zone II Overviews



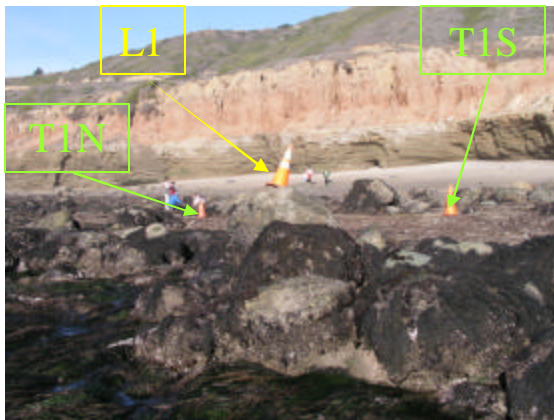
L1 (239)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.668190°N 117.245128°W
Height	46.14 in.

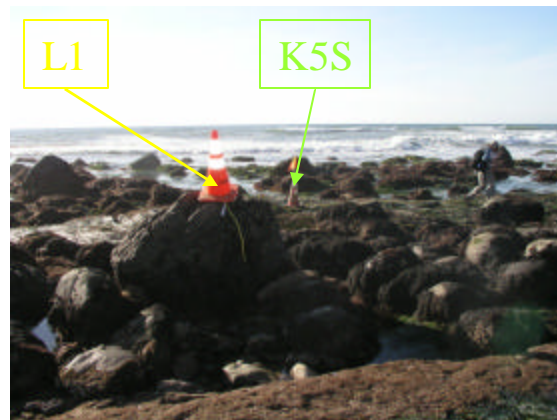
Description: Top of fractured green boulder. First large boulder west of bench with T1. Bolt is in cleft at top of rock. Old copper bolt.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	243	51.24	338
B2	248	29.10	10
Po1	275N	34.07	330
T1N	244N	12.95	195
T1C	244C	6.90	235
T1S	244S	6.91	240

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	267N	14.70	140
G3S	267S	5.20	110
K5N	268N	15.00	130
K5S	268S	8.08	95



Taken in 1/06, cone is over the bolt.



Taken in 1/06, cone is over the bolt.



Taken in 1/06, string is around bolt.



Taken in 1/06, string is around bolt.

Last Update: Jun-06

L2 (243)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.667736°N 117.245068°W
Height	43.64 in.

Description: Single stainless bolt in sandstone layer close to overhanging cliff. We have lost and replaced this bolt many times.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	51.24	158
Pe3(LL)	252	11.33	123



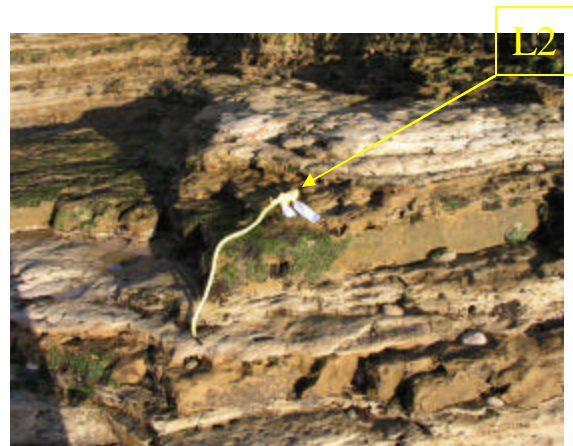
Taken in 1/06, cone over bolt.



Taken in 1/06, cone over bolt.



Taken in 1/06, yellow rope around bolt.



Taken in 1/06, yellow rope around bolt.

L3 (240)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.667439°N 117.245159°W
Height	38.39 in.

Description: Old copper bolt.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B3	256	12.65	360
M4	254	25.69	140
M5	255	26.20	110

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2N	270N	22.95	40
T2C	270C	25.60	27
T2S	270S	28.16	21
K6N	272N	35.31	61



Taken in 1/06, cone over bolt.



Taken in 1/06, pink string over bolt.



Taken in 1/06, pink string over bolt.



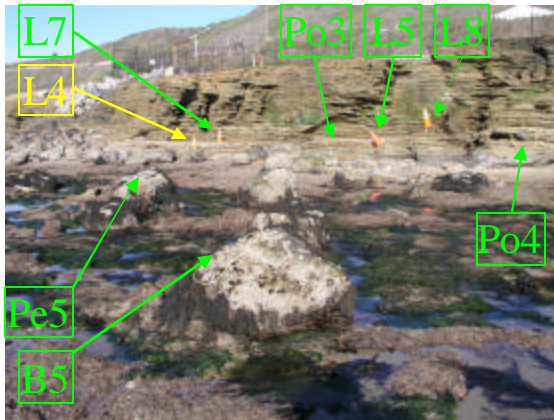
Taken in 1/06, pink string over bolt.

L4 (242)

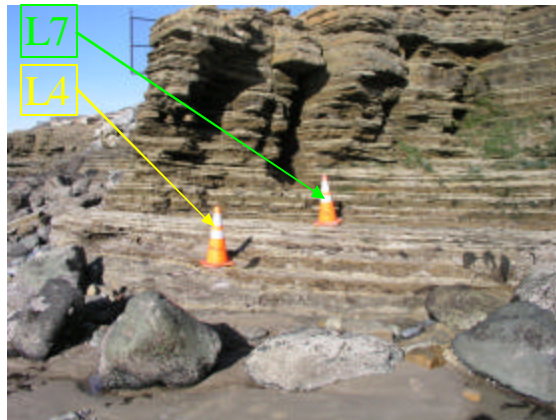
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.667297°N 117.244944°W
Height	29.98 in.

Description: We have lost and replaced this bolt many times through the years. It is now considerably lower than most Lottia plots. Below L7, just right of the point that is right of fence.

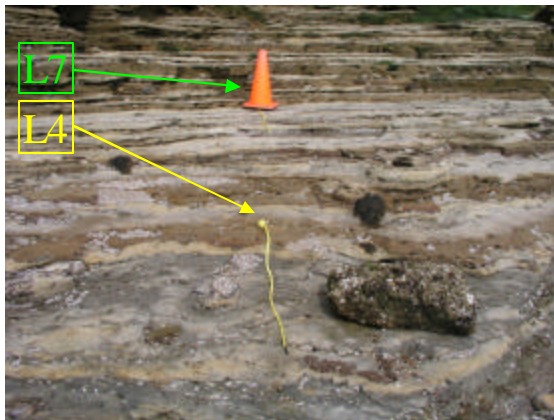
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L5	266	10.21	335
L7	242A	2.00	260
L8	266A	12.40	338
B3	256	21.27	80
B4	259	11.40	40
Po3	274N	7.63	360



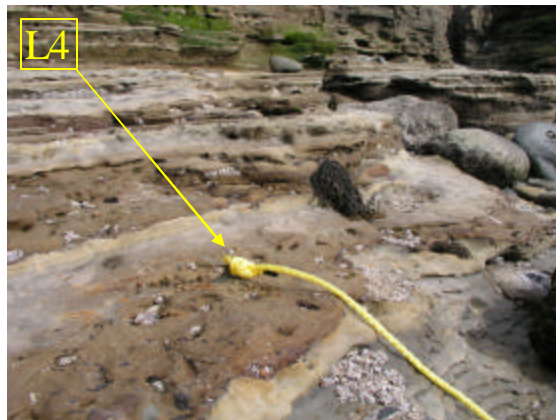
Taken in 1/06. Cone is on bolt.



Taken in 1/06. Cone is on bolt.



Taken in 3/06. Yellow rope around bolt.



Taken in 3/06. Yellow rope around bolt.

L5 (266)

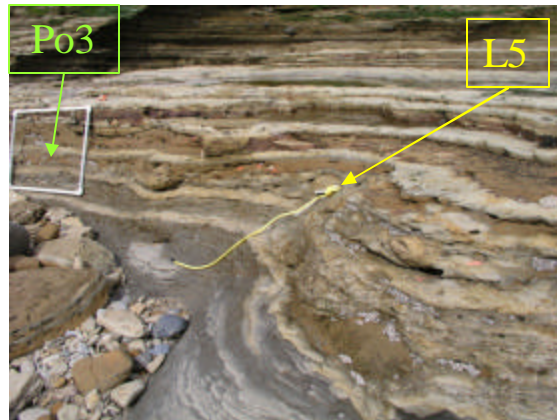
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.667191°N 117.244920°W
Height	42.26 in.

Description: In corner of cliff, below and north of L8. Lower than upper bolts of Po3 but higher than lower bolts of Po3. A new stainless bolt.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	242	10.21	155
L7	242A	10.60	182
L8	266A	2.30	347
B4	259	12.45	100
Po3	274N	2.80	180
Po4	274S	7.10	N/A



Taken 1/06, cone on bolt.



Taken 3/06, bolt marked with yellow string.



Taken 1/06, bolt marked with yellow string.



Taken 3/06, bolt marked with yellow string. Notice the change in the cobbles below between January and March.

L6 (241)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.667117°N 117.245360°W
Height	29.64 in.

Description: Short, old, copper bolt surrounded by anemones on big boulder which is furthest west in a line of three isolated boulders. The bolt is on top.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2N	270N	21.75	172
T2C	270C	16.64	190
T2S	270S	12.90	187
G4N	271N	21.70	165
G4C	271C	16.83	155
G4S	271S	12.95	140

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
K6N	272N	30.40	136
K6C	272C	24.83	150
K6S	272S	20.10	150



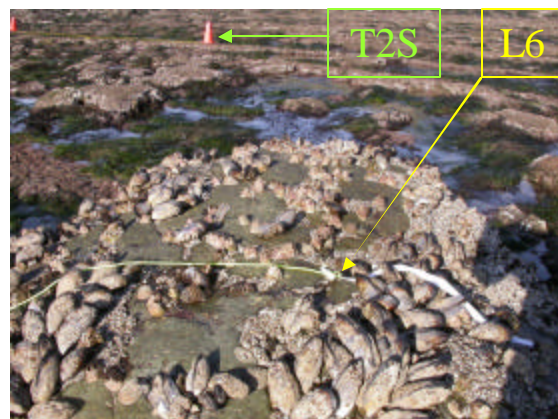
Taken in 1/06, cone over bolt.



Taken in 1/06, cone over bolt.



Taken in 1/06, cone over bolt.



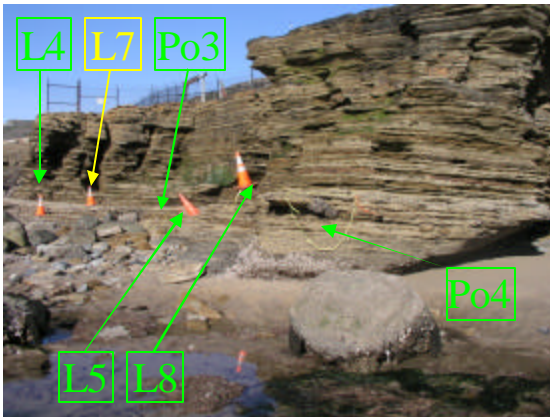
Taken in 1/06, bolt marked with yellow string.

L7 (242A)

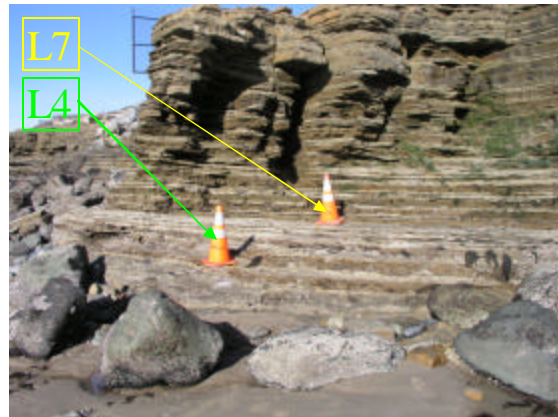
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	No Data
Height	48.26 in.

Description: This plot was established to make up for L4, which was broke off so many times that it is no longer in limpet habitat. This new one is above L4, both of which are just right of the point that is right of fence.

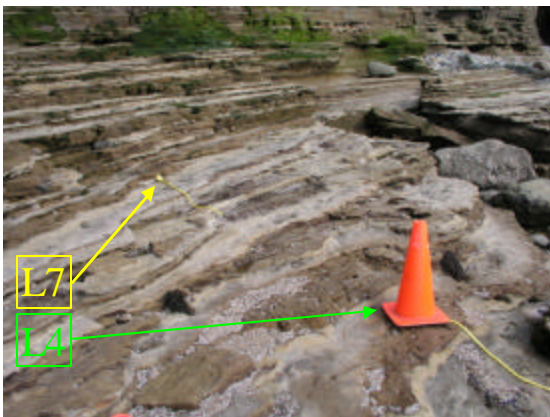
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	242	2.00	80
L5	266	10.60	2
Pe5	265	14.50	20
Po3	274N	8.65	348



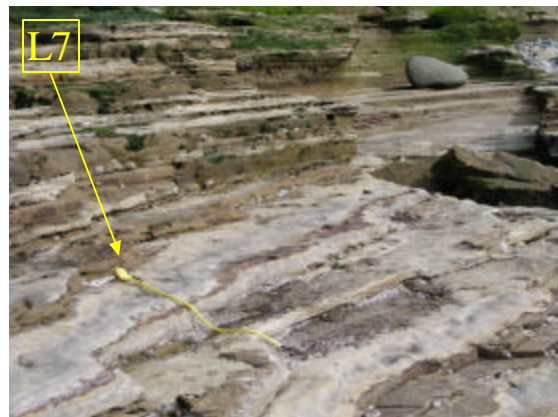
Taken in 1/06. Cone over bolt.



Taken in 1/06. Cone over bolt.



Taken in 3/06. Yellow rope around bolt.



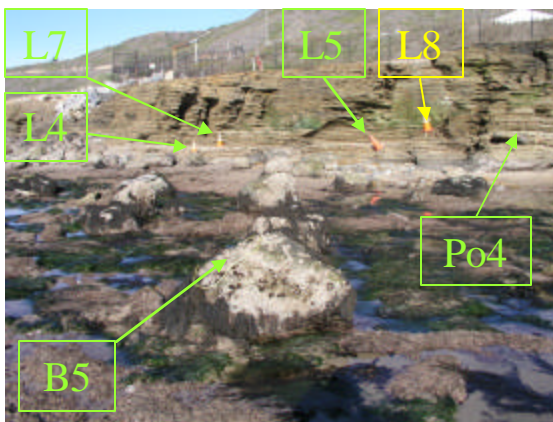
Taken in 3/06. Yellow rope around bolt.

L8 (266A)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	No Data
Height	70.26 in.

Description: To the south and above L5. A short, rusted bolt in flat vertical face of cliff. There are numerous cracks in the rock contained in the plot.

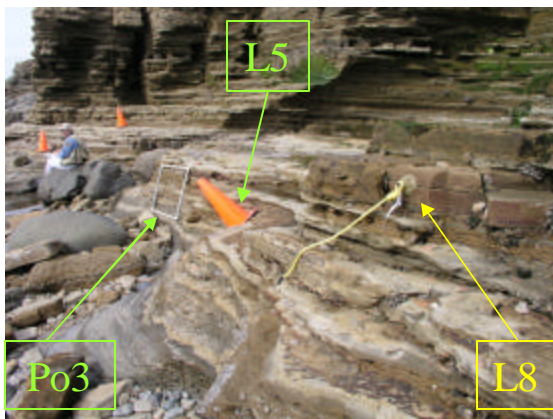
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	242	12.40	158
L5	266	2.30	167
Pe5	265	10.00	84
Po3	274N	2.00	184



Taken in 1/06. Cone is over the bolt.



Taken in 1/06. Cone is over the bolt.



Taken in 3/06. Yellow string on bolt.



Taken in 1/06. Yellow string on bolt.

B1 (247)

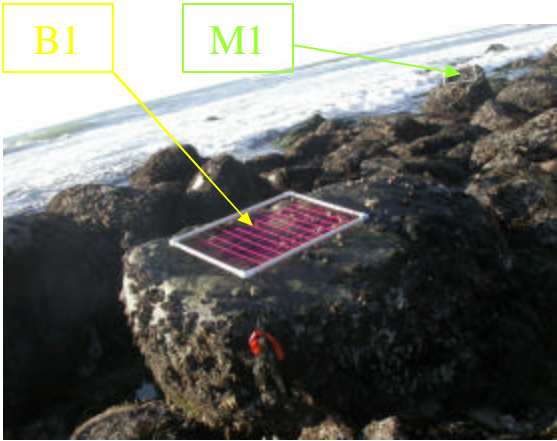
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667930°N 117.245276°W
Height	21.39 in.

Description:

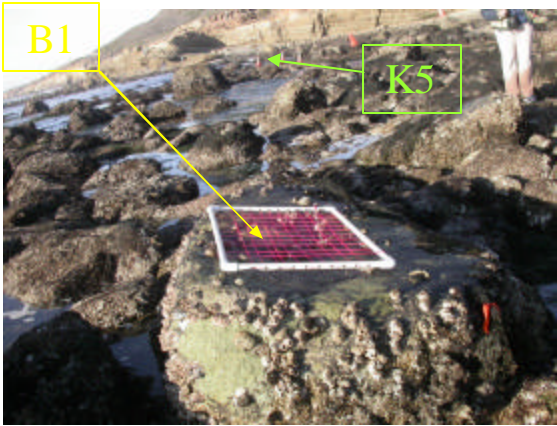


2 B1 SP06

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B2	248	5.71	270
M1	245	9.09	145
M2	246	3.00	90



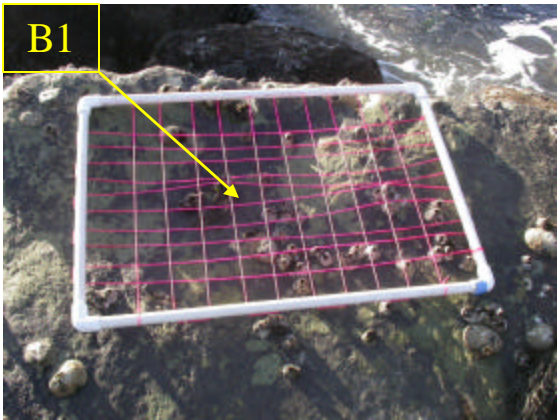
Taken 1/06.



Taken 1/06.



Taken 1/06. The unlabelled frames are not marking anything.

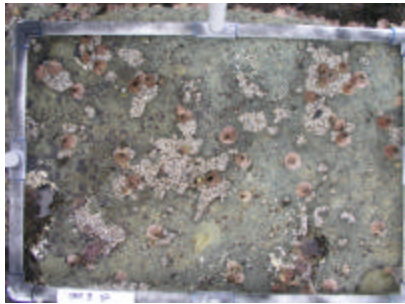


Taken 1/06.

B2 (248)

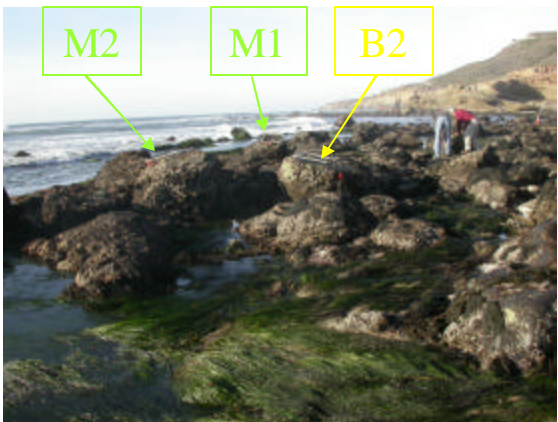
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667938°N 117.245220°W
Height	33.14 in.

Description:

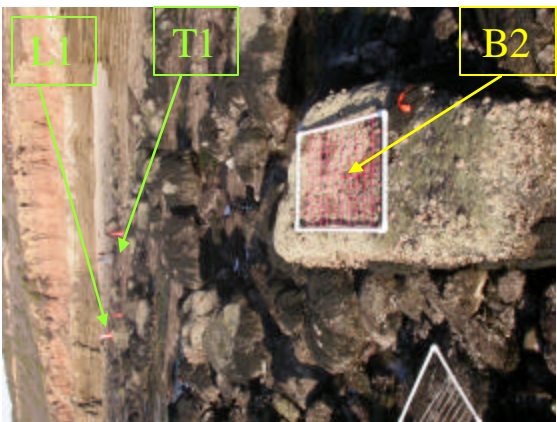


2 B2 SP05

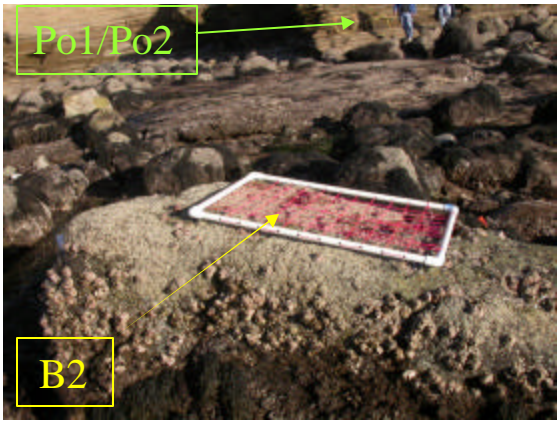
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	29.10	190
B1	247	5.71	90
M1	245	11.85	135
Pe1	249	6.55	360



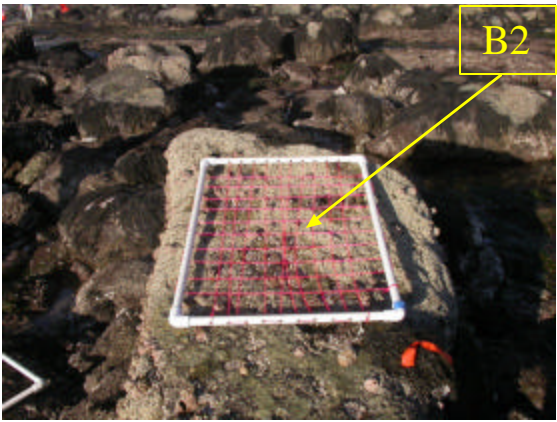
Taken in 1/06. The orientation of M1 is incorrect, although it is the right boulder.



Taken in 1/06. The frame on the ground does not mark anything.



Taken in 1/06.



Taken in 1/06. The frame on the ground does not mark anything.

B3 (256)

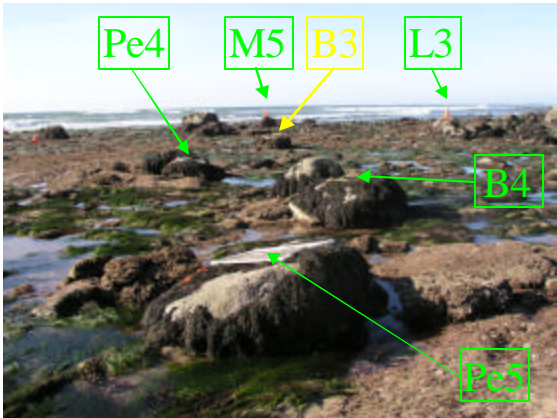
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667326°N 117.245159°W
Height	16.76 in.

Description: A large rock by itself, out from the surfboard sign on the top of the cliff. A flat part of boulder that faces south.

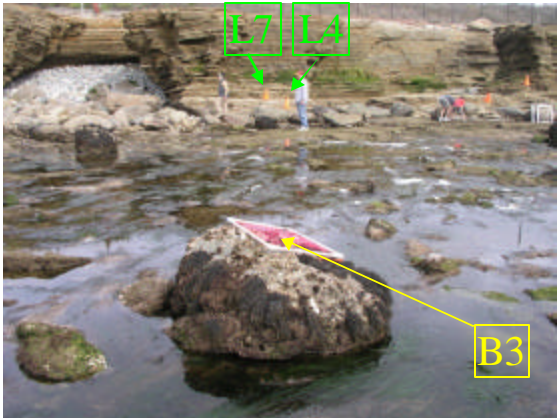


2 B3 SP05

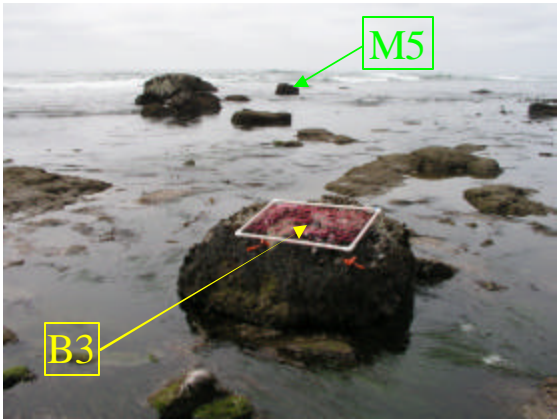
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	240	12.65	180
L4	242	21.27	260
T2N	270N	17.14	70
T2C	270C	17.15	52
T2S	270S	17.98	45



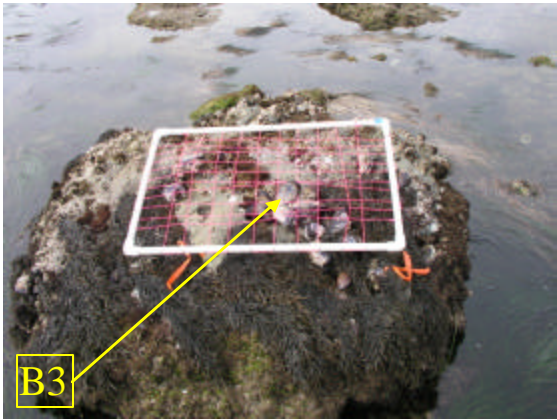
Taken in 1/06.



Taken in 3/06.



Taken in 3/06.



Taken in 3/06.

B4 (259)

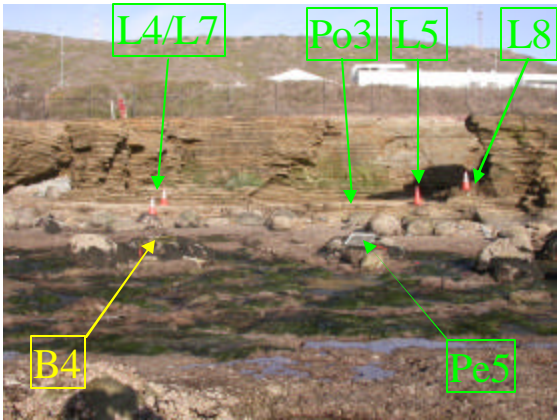
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667239°N 117.245046°W
Height	16.92 in.

Description: In a cluster of two rocks. This is the one that is larger and closer to shore. It is flat and sloping towards the ocean.



2 B4 SP05

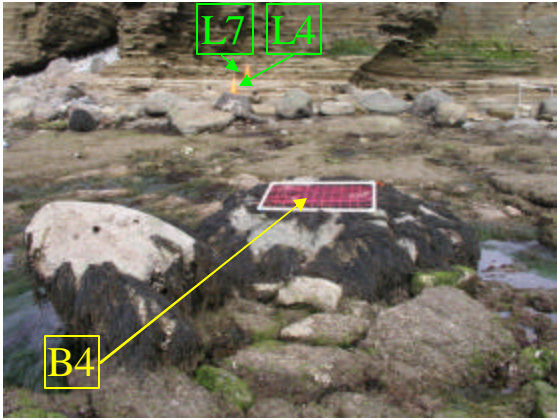
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	242	11.40	220
L5	266	12.45	280
Pe4	258	5.69	110
Pe5	265	5.29	320
Po3	274N	12.00	290



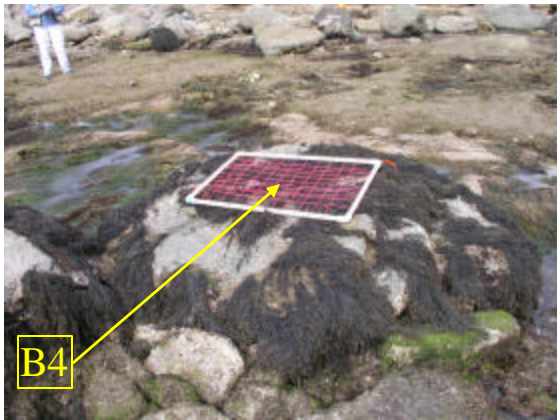
Taken in 1/06.



Taken in 3/06.



Taken in 3/06.

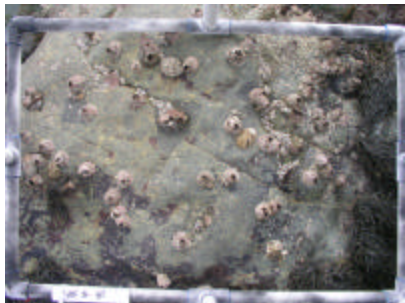


Taken in 3/06.

B5 (260)

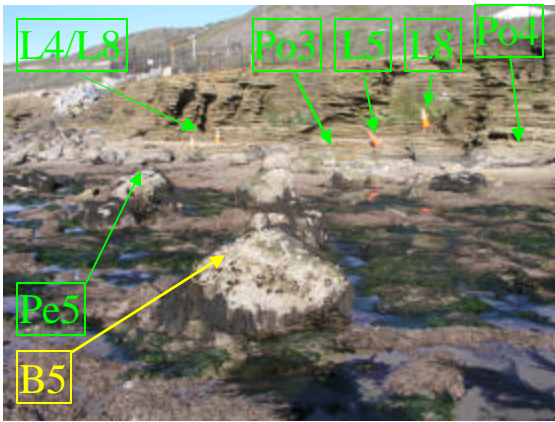
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667113°N 117.245055°W
Height	39.76 in.

Description: A large rock out from Po4. Two smaller rocks are leading out. There were questions about the orientation of this one in the past. Decided to go with the SP05 orientation shown here.

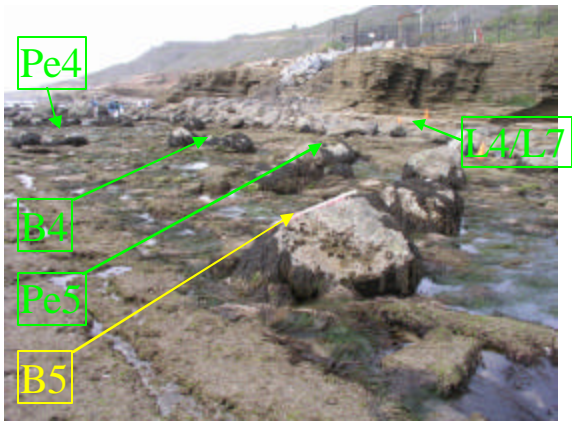


2 B5 SP05

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
Pe5	265	10.75	190
Po4	274S	13.90	270
Po5	273N	23.88	270
Po6	273S	25.96	295



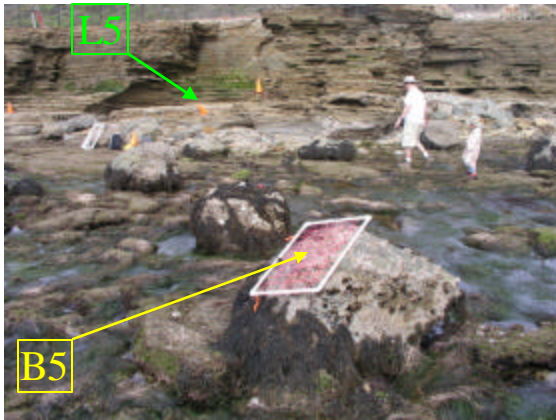
Taken in 1/06. Yellow rope on plot.



Taken in 3/06. Pink quadrat on plot.



Taken in 3/06. Pink quadrat on plot.

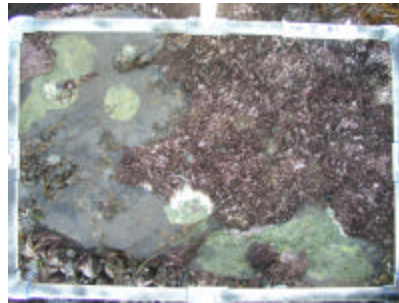


Taken in 3/06. Pink quadrat on plot.

M1 (245)

Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.668002°N 117.245313°W
Height	17.64 in.

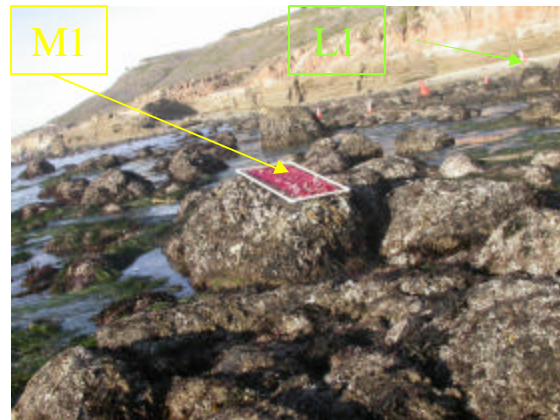
Description: There is an extra blob that does not orient with the plot.



2 M1 FA04



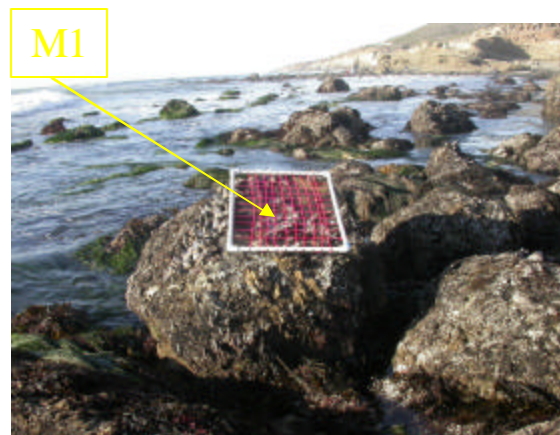
Taken in 1/06. The orientation of M1 is incorrect, although it is the right boulder.



Taken in 1/06. In the background: L1, G3, K5.



Taken in 1/06.

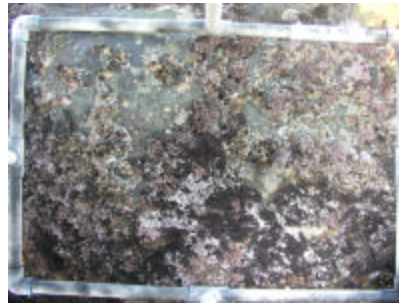


Taken in 1/06.

M2 (246)

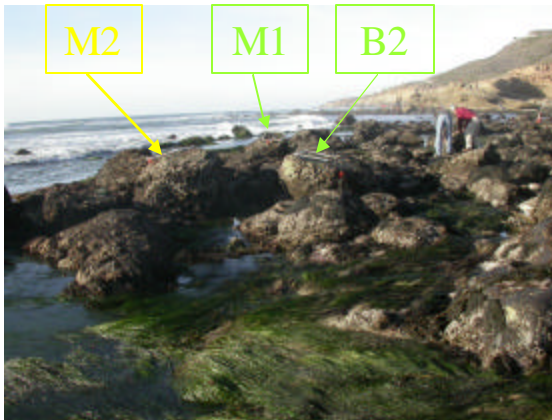
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667916°N 117.245302°W
Height	No Data

Description:

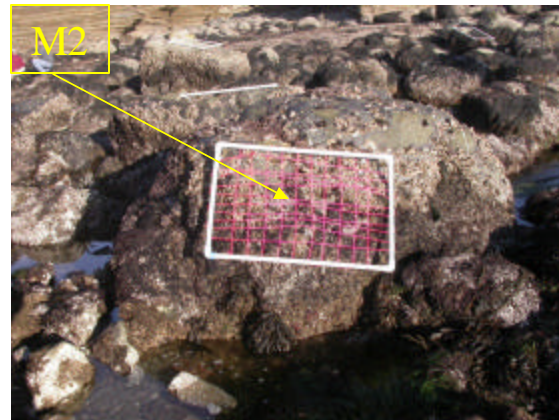


2 M2 FA05

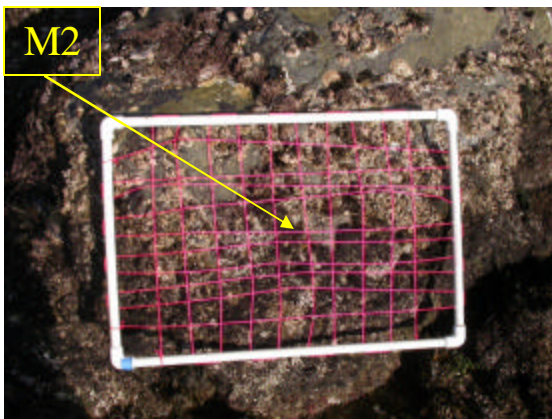
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B1	247	3.00	270
M1	245	9.08	160
M3	253	23.57	360
Pe2	251	11.91	260



Taken in 1/06. The orientation of M1 is incorrect, although it is the right boulder.



Taken in 1/06.



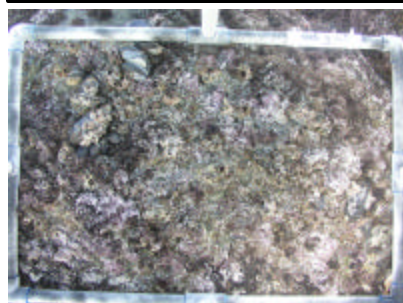
Taken in 1/06.

Last Update: Jun-06

M3 (253)

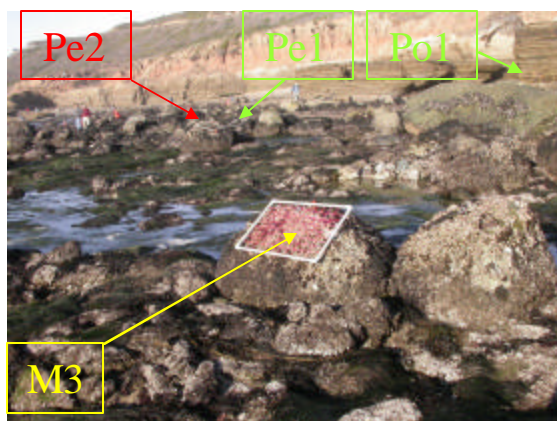
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667710°N 117.245264°W
Height	22.64 in.

Description:

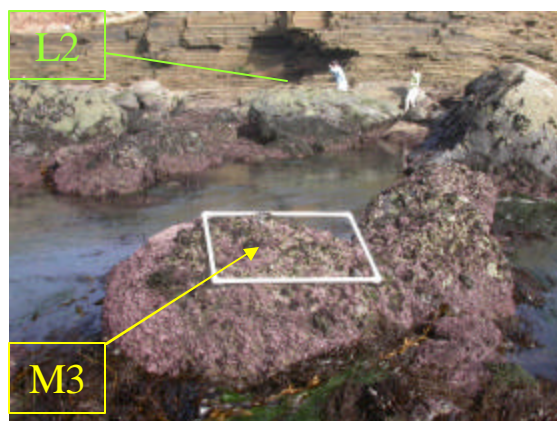


2 M3 FA05

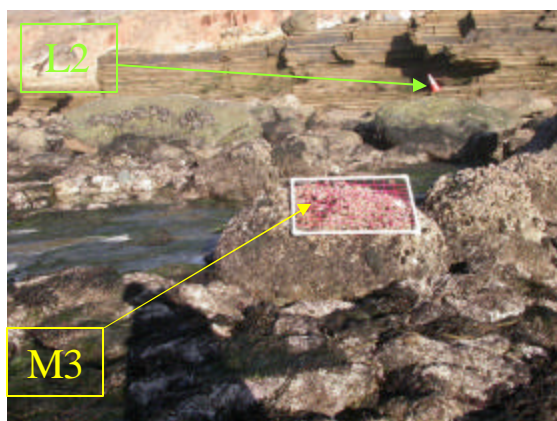
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
M2	246	23.57	180
M4	254	6.29	360



Taken in 1/06. In the background, Pe2 is mismarked.



Taken in FA03, location of L2 is estimated.



Taken in 1/06.



Taken in 1/06.

M4 (254)

Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667659°N 117.245264°W
Height	23.39 in.

Description:



2 M4 SP06

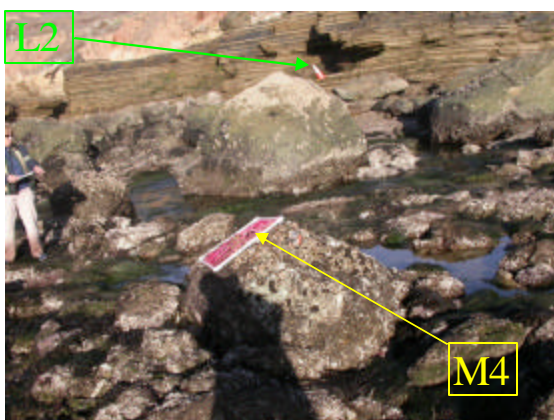
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	240	25.69	320
M3	253	6.29	180
M5	255	19.65	70



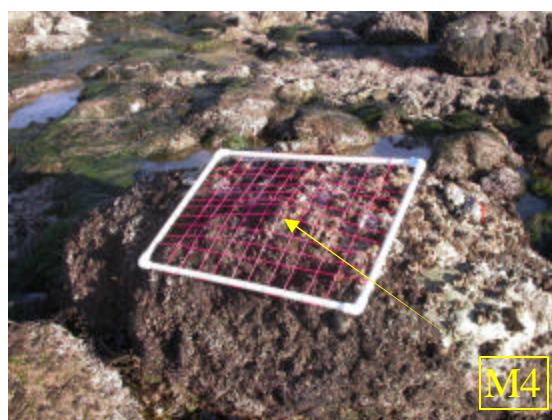
Taken in 1/06. Pink quadrat on plot (on far side of rock).



Taken in 1/06.



Taken in 1/06. Pink quadrat on plot.

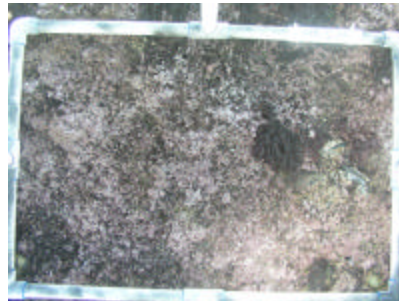


Taken in 1/06.

M5 (255)

Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667533°N 117.245419°W
Height	19.89 in.

Description: This plot is on the north side of the boulder just north of the very big boulder. As of 2005, the right boulder only has turf algae on it, while the big boulder has quite a few mussels on it. The right boulder slopes distinctly to the northwest, the wrong boulder is more rounded.



2 M5 FA05

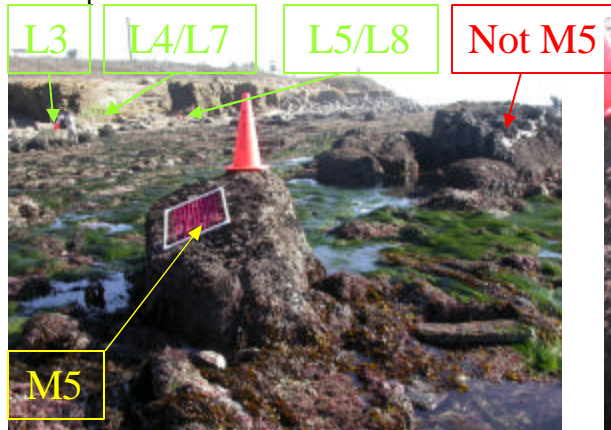
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	240	26.20	290
M4	254	19.65	250
T2N	270N	26.29	390
G4N	271N	26.70	5
K6N	272N	22.38	13



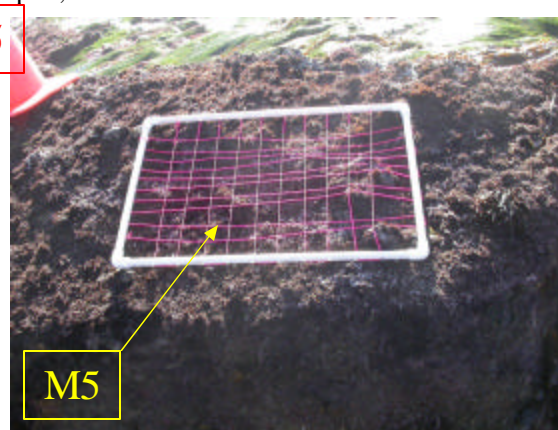
Taken in 1/06, cone marks the rock with the plot. Taken from cliffs above.



Taken in 1/06, cone marks the rock with the plot, which is on the other side of the boulder.



Taken in 1/06, quadrat marks plot.

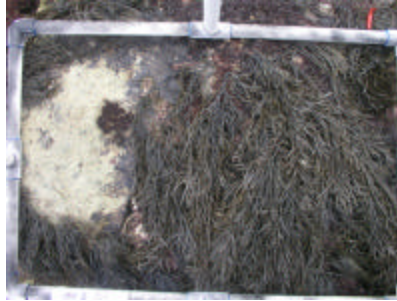


Taken in 1/06, quadrat marks plot.

Pe1 (249)

Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667887°N 117.245181°W
Height	6.64 in.

Description:

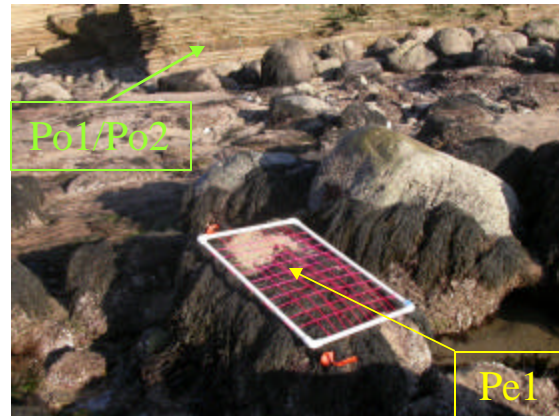


2 Pe1 SP05

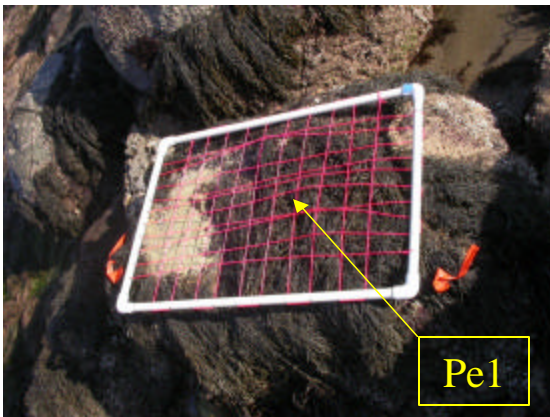
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B2	248	6.55	180
Pe2	251	3.25	45
Pe3	252	11.44	325



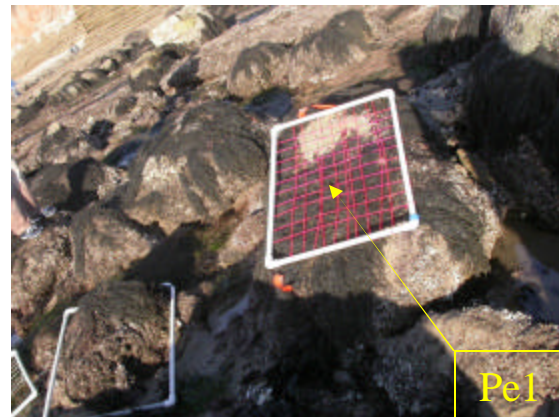
Taken in 1/06. In the foreground is a mislabelled Pe2, the real one is on the ground on the other side of the boulder. Pe1 is in background.



Taken in 1/06. Quadrat marks plot.



Taken in 1/06. Quadrat marks plot.



Taken in 1/06. Pink quadrat marks plot. One on the ground does not mark anything.

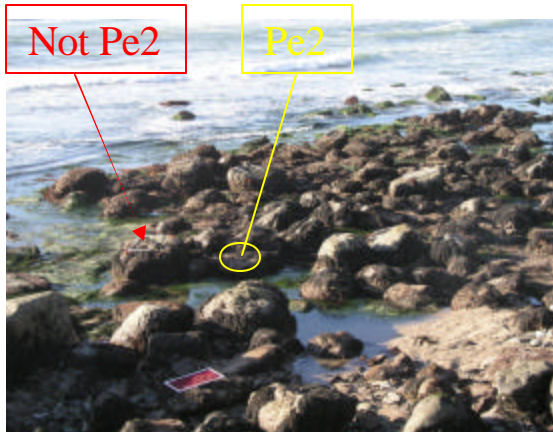
Pe2 (251)

Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667863°N 117.245207°W
Height	26.14 in.

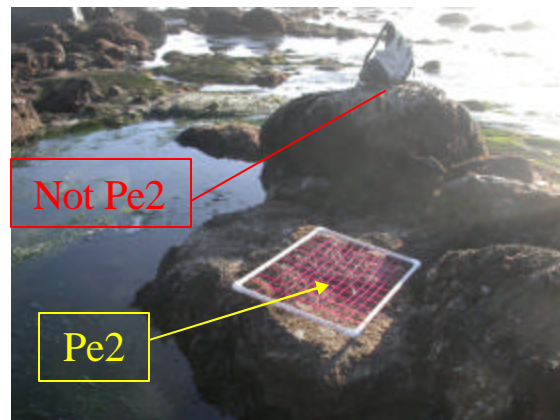
Description: This plot is odd looking—it's on a flat and very low rock. It is **NOT** on the higher rock to the south of it, that bolt is for overviews not for photoplots.



2 Pe2 FA04



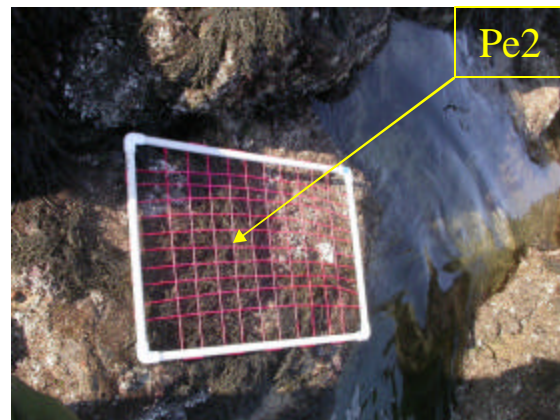
Taken in 1/06. There is a quadrat on the rock often mistaken for Pe2. The real orientation is marked on the photo.



Taken in 1/06. There is a backpack on the rock often mistaken for Pe2. The real orientation is marked with the pink quad.



Taken in 1/06. Quadrat marks plot.
Last Update: Jun-06

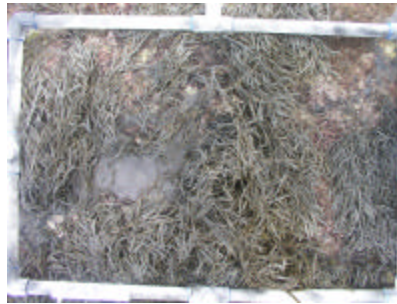


Taken in 1/06. Quadrat marks plot.

Pe3 (252)

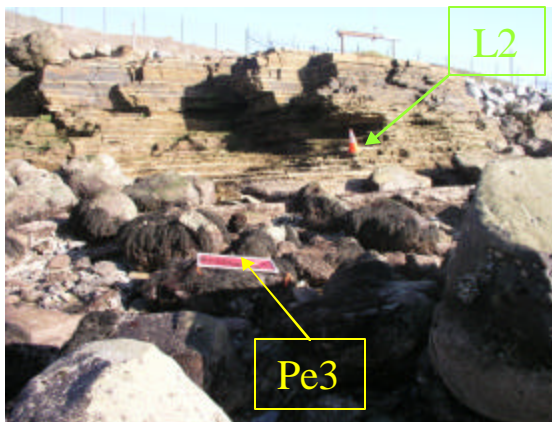
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667800°N 117.245139°W
Height	14.39 in.

Description:



2 Pe3 SP05

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	243	11.33	303
Pe1	249	11.44	145
Pe2	251	9.54	135
Po1	275N	19.08	225



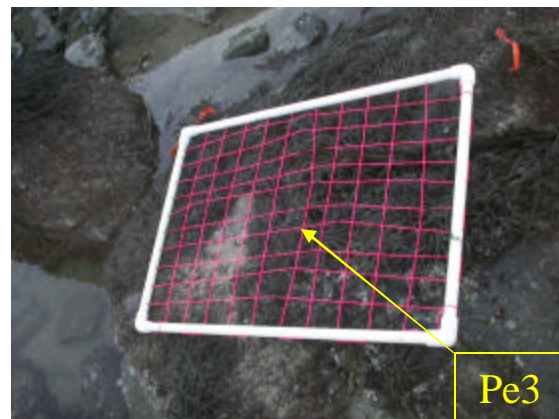
Taken in 1/06, quadrat marks plot.



Taken in 1/06, quadrat marks plot.



Taken in 1/06, quadrat marks plot.

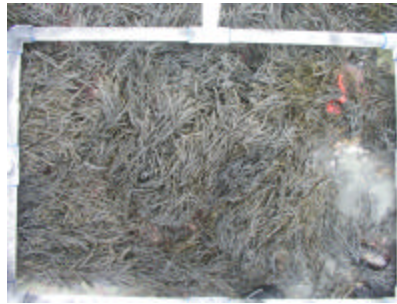


Taken in 1/06, quadrat marks plot.

Pe4 (258)

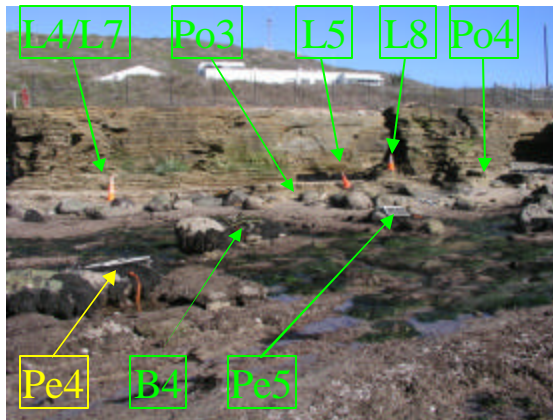
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667253°N 117.245100°W
Height	13.76 in.

Description: West of L7, L4, B4. A flat rock, oblong shape.

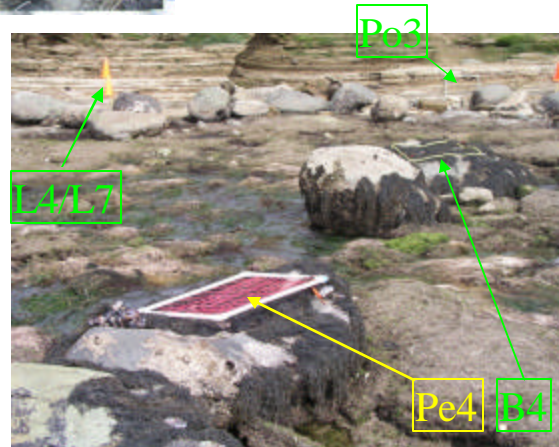


2 Pe4 SP05

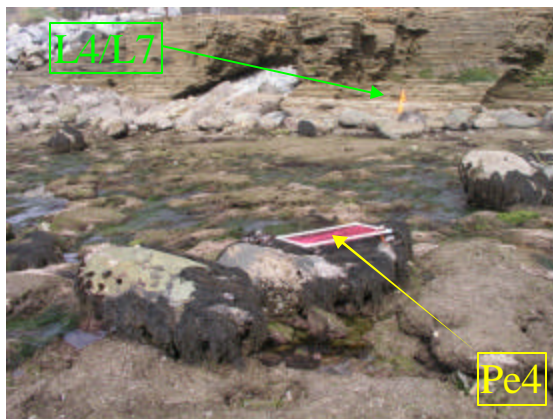
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B4	259	5.69	290
T2N	270N	23.76	105
T2C	270C	21.56	90
T2S	270S	19.98	80



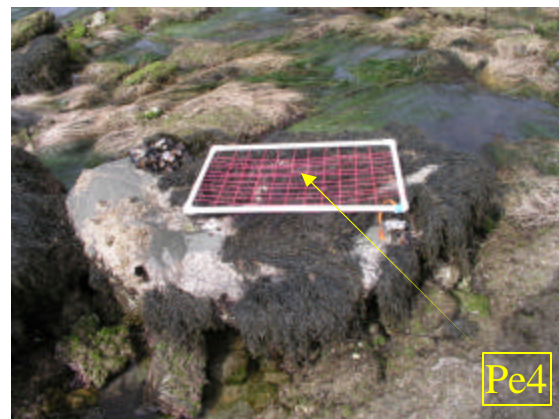
Taken in 1/06.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.



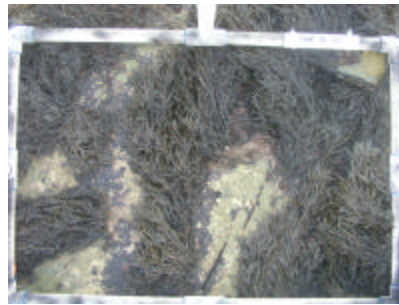
Taken in 3/06. Pink quad on plot

Last Update: Jun-06

Pe5 (265)

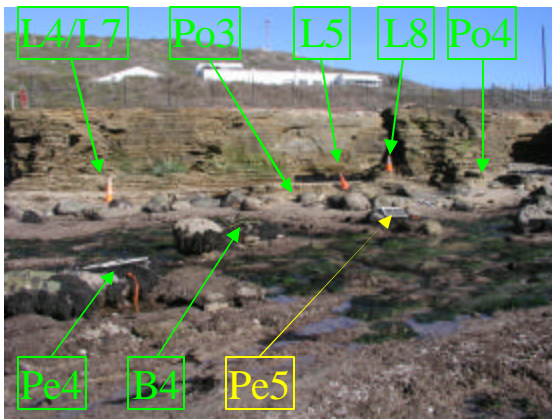
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667203°N 117.245020°W
Height	15.59 in.

Description: A large flat rock tilted towards the ocean to the right of Pe4 and towards shore. A medium sized rock with a smaller turf-covered rock in front of it.

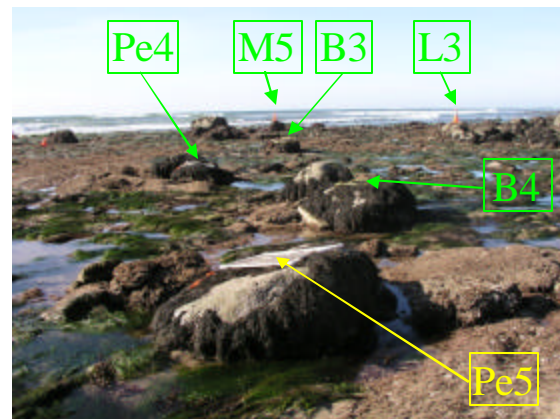


2 Pe5 FA05

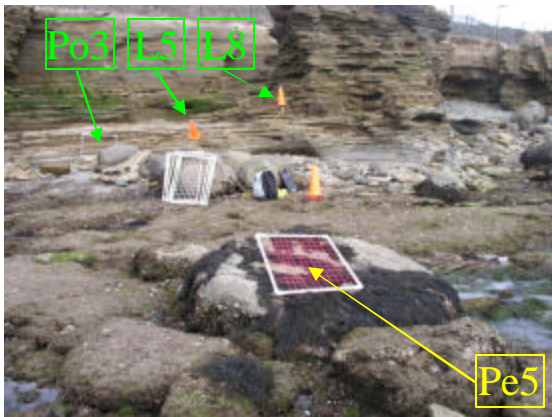
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L7	242A	14.50	200
L8	266a	10.00	264
B4	259	5.29	140
B5	260	10.75	10
Po3	274N	10.60	270



Taken in 1/06.



Taken in 1/06. White quadrat on plot.



Taken in 3/06. Pink quadrat on plot.



Taken in 3/06. Pink quadrat on plot.

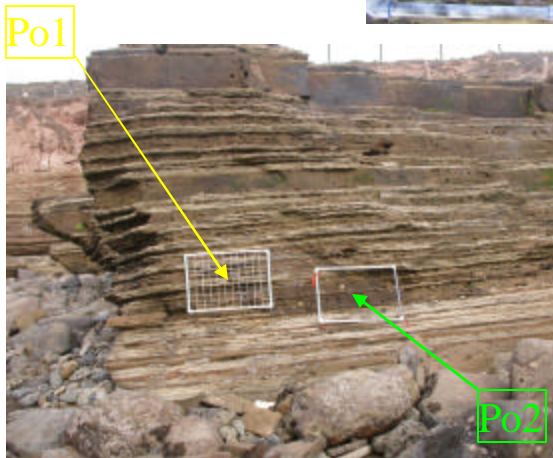
Po1 (275N)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667895°N 117.245014°W
Height	58.39 in.

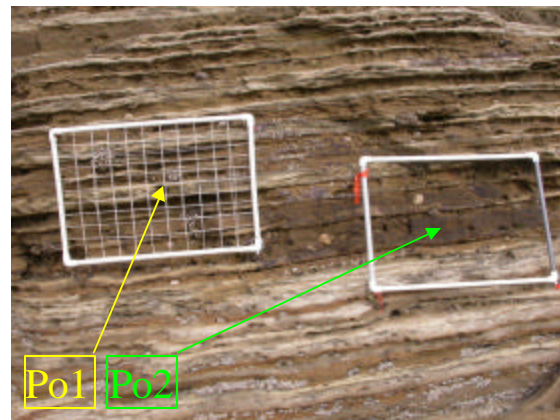
Description: North and higher than Po2. UR and LR are regular stainless bolts. UL is a rusted bolt. LL is a stainless bolt that is deeper in crevice. Lower bolts should be in thick sandstone layer (same layer as L2?). Breakouts are common in this area.



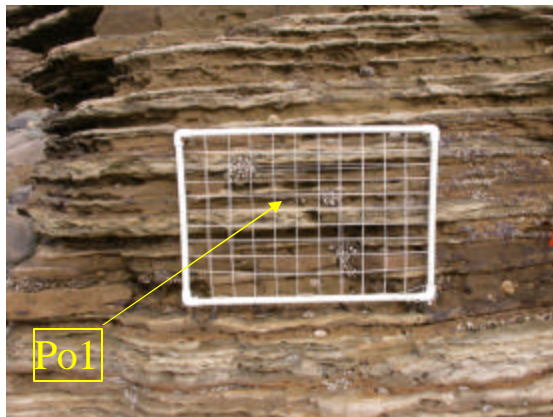
2 Po1 FA04



Taken in 3/06. Grided quad on plot.



Taken in 3/06. Grided quad on plot.



Taken in 3/06.

Last Update: Jun-06

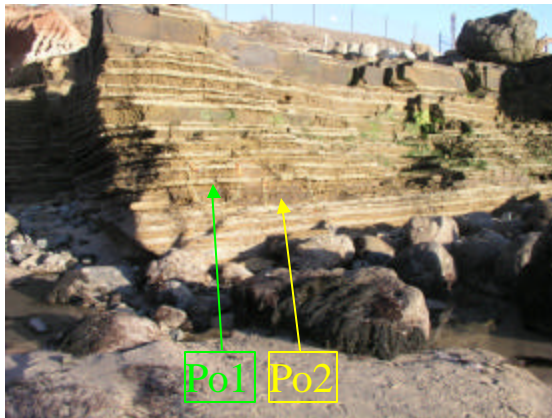
Po2 (275C)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667881°N 117.245016°W
Height	54.64 in.

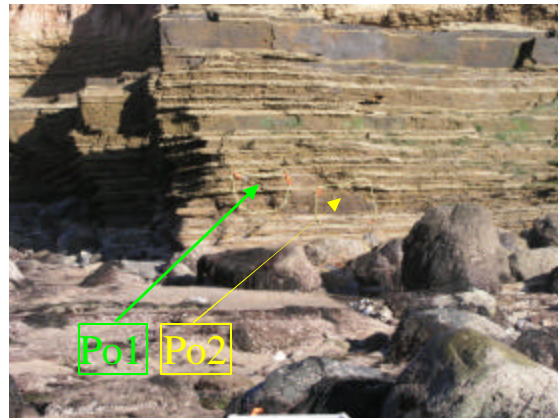
Description: South and lower than Po1. UL and LL are rusted bolts. LR is a regular stainless bolt. There is no UR bolt.



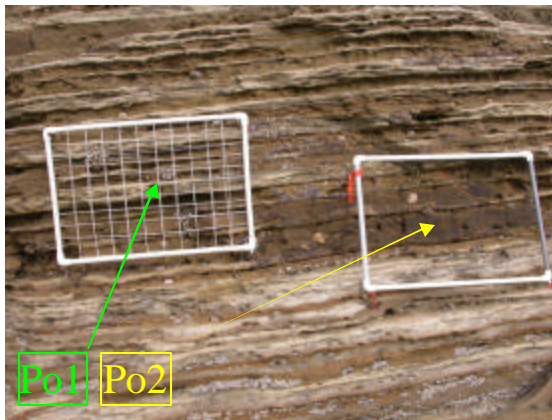
2 Po2 SP05



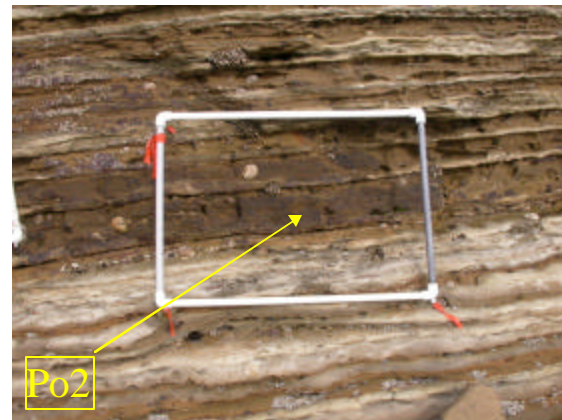
Taken in 1/06. Yellow rope on plot.



Taken in 1/06. Yellow rope on plot.



Taken in 3/06. Plain quad on plot.

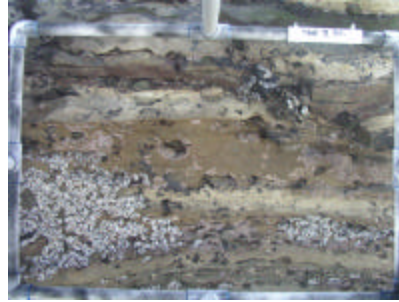


Taken in 3/06. Plain quad on plot.

Po3 (274N)

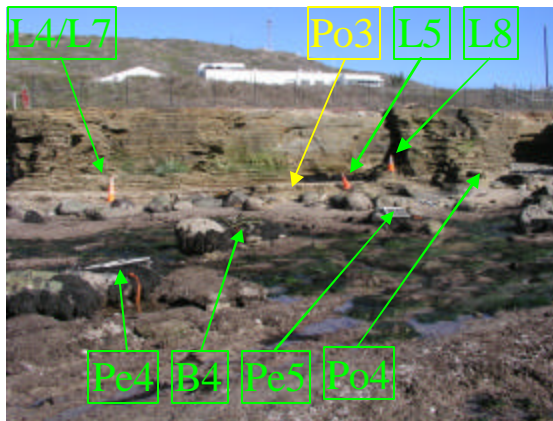
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667235°N 117.244918°W
Height	41.26 in.

Description: Left of L5. UL and UR has bolts (use these to align), LL and LR are blobs of puddy. Bolts are on the edge of the shelf.

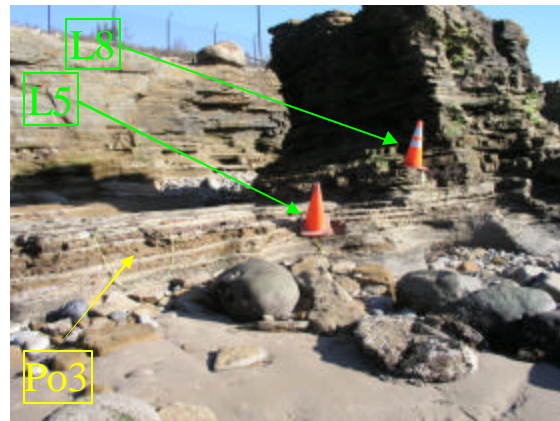


2 Po3 FA05

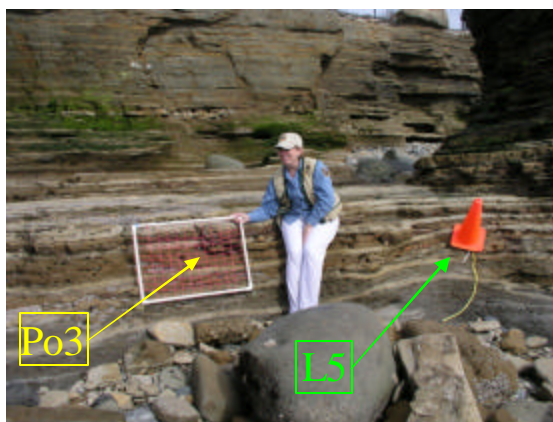
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L4	242	7.63	180
L5	266	2.80	360
L7	242A	8.65	168
L8	266A	2.00	4
B4	259	12.00	110
Pe5	265	10.60	90
Po4	274S	8.84	~350



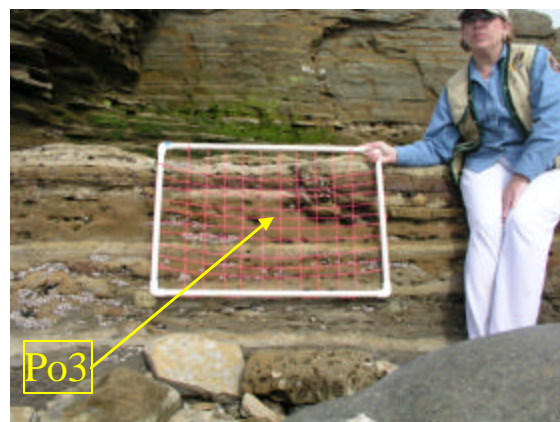
Taken in 1/06.



Taken in 1/06. Yellow rope on plot.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.

Last Update: Jun-06

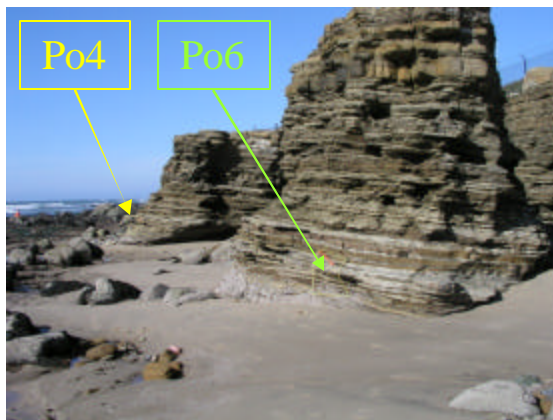
Po4 (274S)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667157°N 117.244922°W
Height	69.76 in.

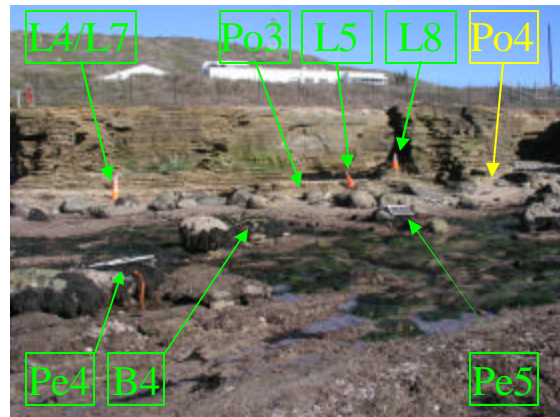
Description: Around the corner from L8. On the right side of the quadrat is an old copper bolt that is NOT used to orient the plot. Orient with upper right and left bolts, quadrat at the bottom of the bolts where they hit the rock.



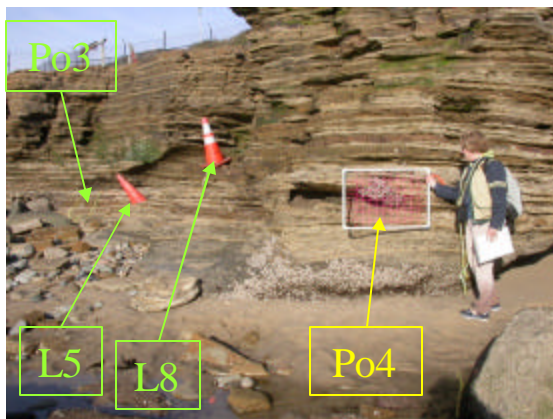
2 Po4 FA05



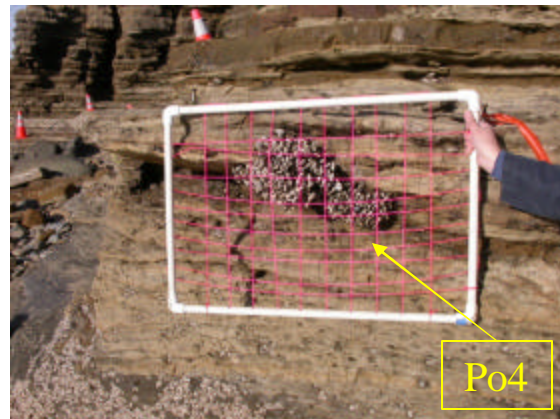
Taken in 1/06. Plot marked with yellow rope.



Taken in 1/06. Plot marked with yellow rope.



Taken in 1/06. Plot marked with pink quad.

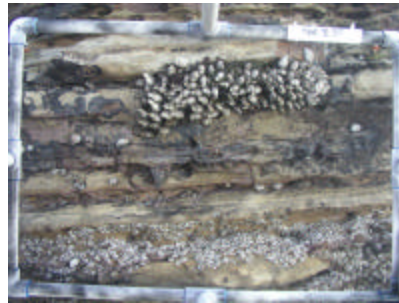


Taken in 1/06. Plot marked with pink quad.

Po5 (273N)

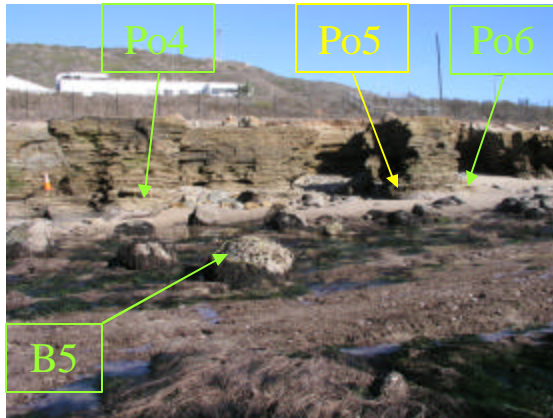
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667049°N 117.244838°W
Height	62.51 in.

Description: On the north side of the sea stack, slightly around the corner from Po6.

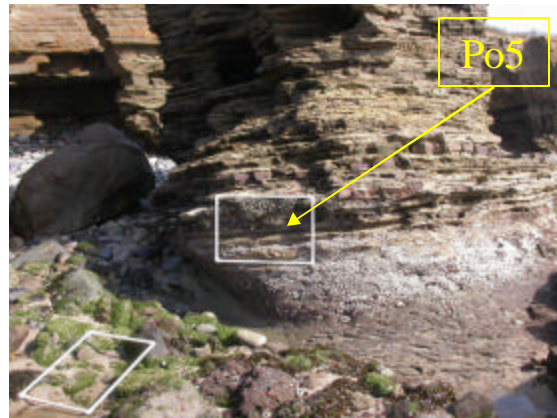


2 Po5 FA05

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B5	260	23.88	90
Po4	274S	14.75	160
Po6	273S	5.02	~330



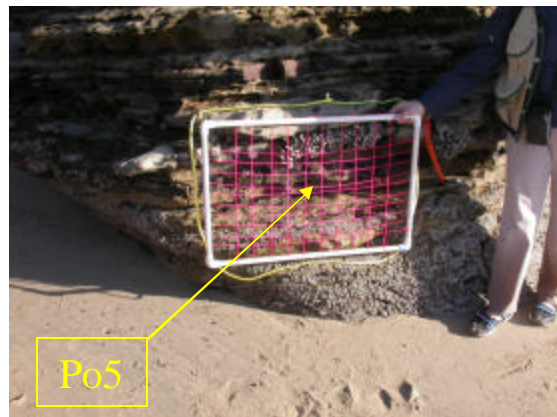
Taken in 1/06. Yellow rope marks plot.



Taken in FA03, quadrat on cliff marks plot. The one on the ground doesn't mark anything..



Taken in 1/06. Pink quadrat marks plot.



Taken in 1/06. Pink quadrat marks plot.

Po6 (273S)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.667007°N 117.244824°W
Height	64.26 in.

Description: South side of sea stack, around the corner from Po5.

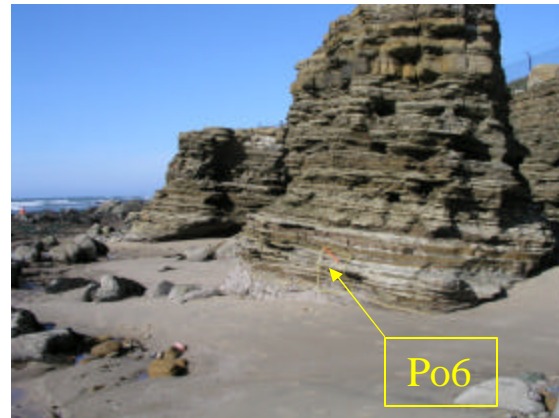


2 Po6 SP05

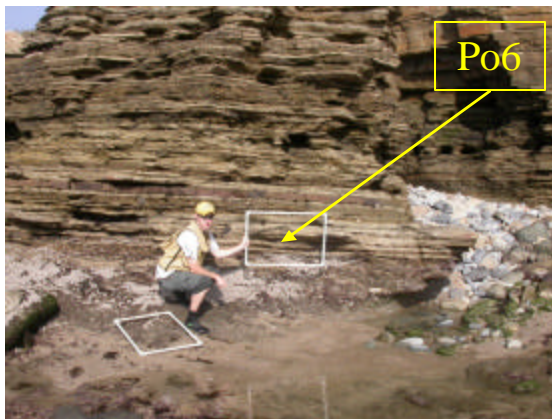
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B5	260	25.96	115
Po5	273N	5.02	~150



Taken in 1/06. Yellow rope marks plot.



Taken in 1/06. Yellow rope marks plot.



Taken in FA03, quadrat he's holding marks plot.
The one on the ground doesn't mark anything..

Last Update: Jun-06



Taken in 1/06. Pink quad marks plot.

T1N (244N)

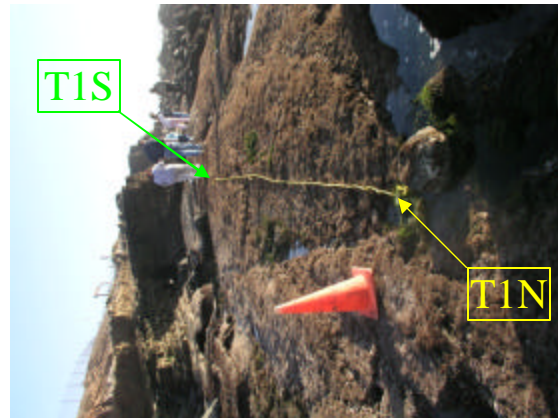
Target	Red Algal Turf
Type	Transect
Bolts	1 of 3, line
Coordinates	32.668294°N 117.245069°W
Height	2.14 in.

Description: Steel next to old copper bolt. Near intersection between prominent crack and set of low boulders. Use the stainless one.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	12.95	15
T1C	244C	5.01	345
T1S	244S	9.80	342
G3N	267N	12.00	110



Taken in 1/06, cones over bolts.



Taken in 1/06, cone not on bolt. (Photo rotated by 90°)



Taken in 1/06, yellow tape on bolt.



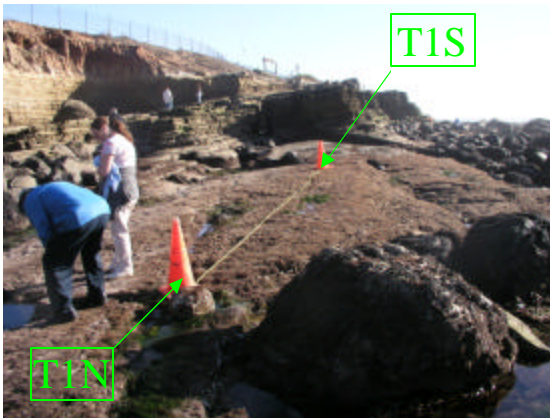
Taken in 1/06, yellow tape on bolt.

T1C (244C)

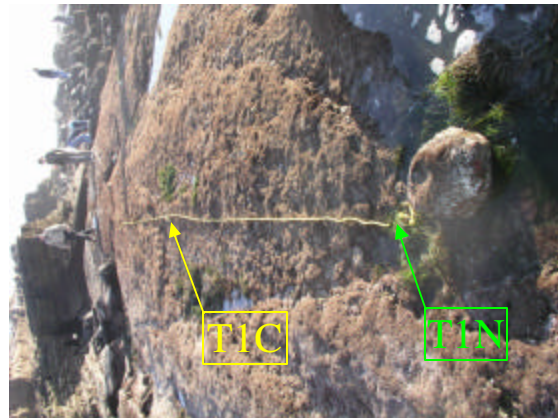
Target	Red Algal Turf
Type	Transect
Bolts	2 of 3, line
Coordinates	32.668251°N 117.245063°W
Height	9.14

Description: Single stainless bolt in center of second segment of the bench. Near small ridge in the bench.

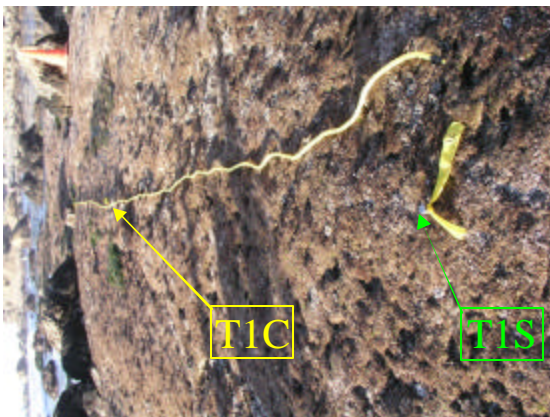
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	6.90	55
T1N	244N	5.01	165
T1S	244S	4.80	342



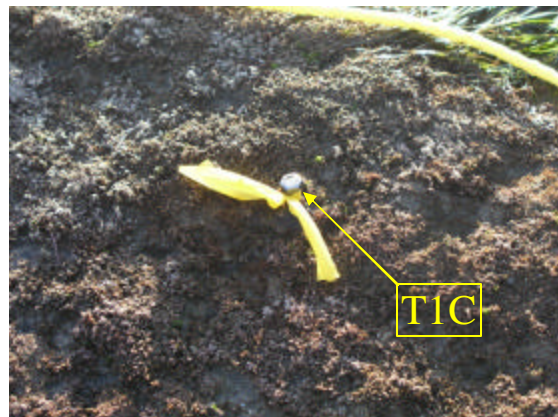
Taken in 1/06, cones over N and S bolts, center is marked but hard to see in this photo.



Taken in 1/06, bolts marked with yellow tape. (Photo rotated by 90°).



Taken in 1/06, bolts marked with yellow tape. (Photo rotated by 90°).



Taken in 1/06, bolt marked with yellow tape.

T1S (244S)

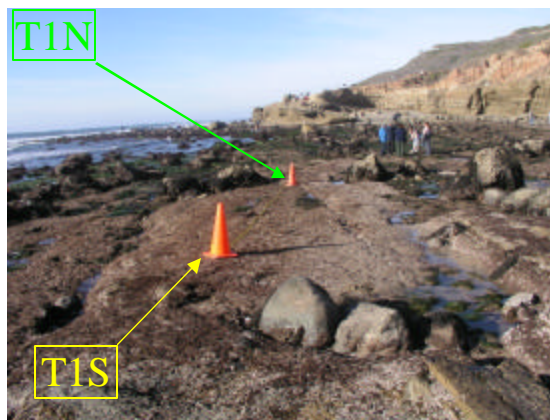
Target	Red Algal Turf
Type	Transect
Bolts	3 of 3, line
Coordinates	32.668207°N 117.245056°W
Height	15.14 in.

Description: A stainless bolt next to an old copper one. South end of flat bench—second segment of bench.

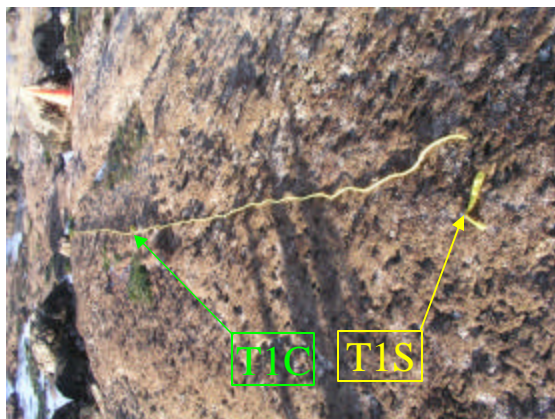
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	6.80	60
T1N	244N	9.80	162
T1C	244C	4.80	162
G3S	267S	10.97	85



Taken in 1/06, cones over bolts.



Taken in 1/06, cones over bolts.



Taken in 1/06, bolts marked with yellow tape. (Photo rotated by 90°).



Taken in 1/06, bolts marked with yellow tape.

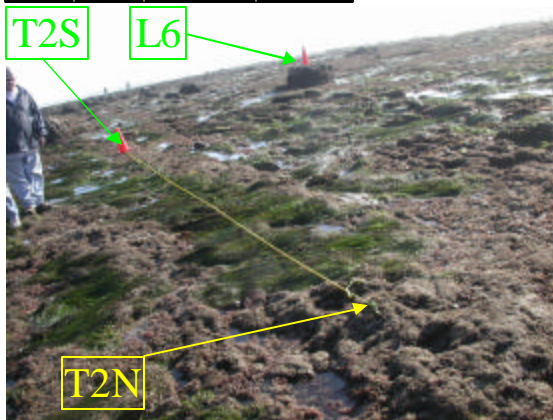
T2N (270N)

Target	Red Algal Turf
Type	Transect
Bolts	1 of 3, line
Coordinates	32.667307°N 117.245346°W
Height	5.39 in.

Description: Short stainless bolt on high point about 4.5 meters southeast of the boulder.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	240	22.95	220
L6	241	21.75	352
B3(UL)	256	17.14	250
M5	255	26.29	210
Pe4	258	23.76	285
T2C	270C	5.44	345
T2S	270S	10.09	328

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	271N	8.24	71
G4C	271C	10.05	50
G4S	271S	13.60	25
K6N	272N	16.88	95
K6S	272S	13.20	58



Taken in 1/06, string looped over bolt.



Taken in 1/06, string looped over bolt.



Taken in 1/06, string looped over bolt. Cone does not mark anything.



Taken in 1/06, string looped over bolt.

Last Update: Jun-06

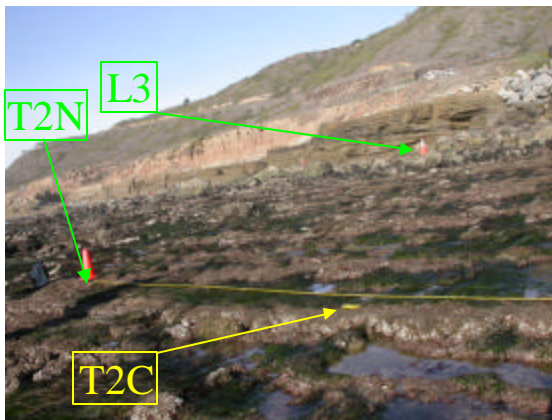
T2C (270C)

Target	Red Algal Turf
Type	Transect
Bolts	2 of 3, line
Coordinates	32.667261°N 117.245331°W
Height	3.64 in.

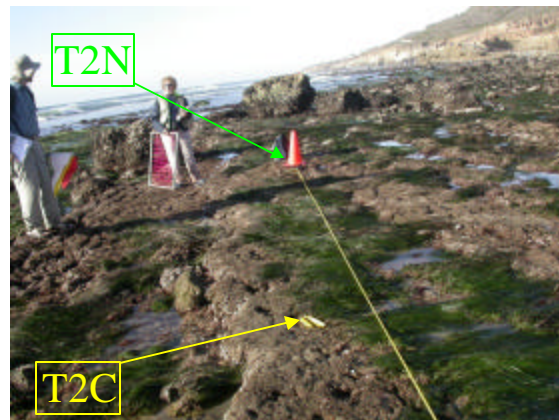
Description: West of the transect by about 1.5 feet (not aligned).
West and slightly south of B3.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	240	25.60	207
L6	241	16.64	10
B3(UL)	256	17.15	232
Pe4	258	21.56	270

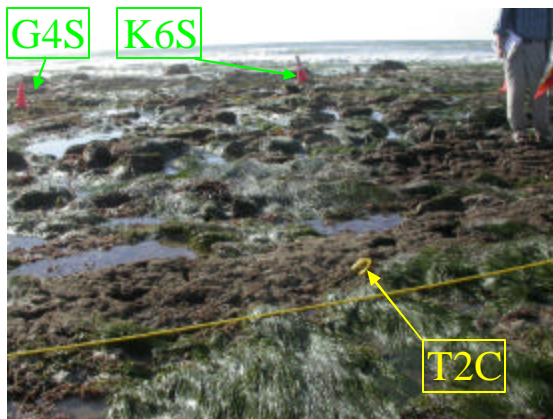
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2N	270N	5.44	165
T2S	270S	4.70	143
G4N	271N	10.40	115
G4C	271C	9.36	80
G4S	271S	11.16	60



Taken in 1/06, yellow tape on center bolt.



Taken in 1/06, yellow tape on center bolt.



Taken in 1/06, yellow tape on center bolt.



Taken in 1/06, yellow tape on center bolt.

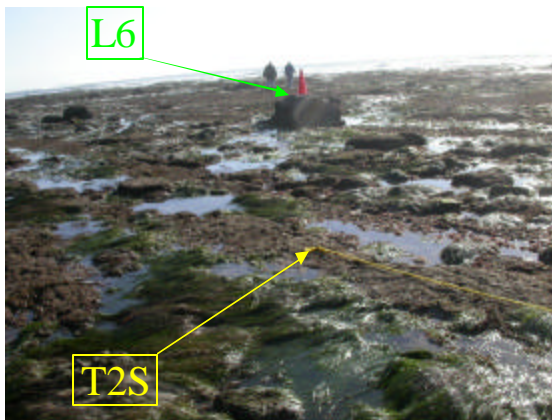
T2S (270S)

Target	Red Algal Turf
Type	Transect
Bolts	3 of 3, line
Coordinates	32.667223°N 117.245314°W
Height	4.89 in.

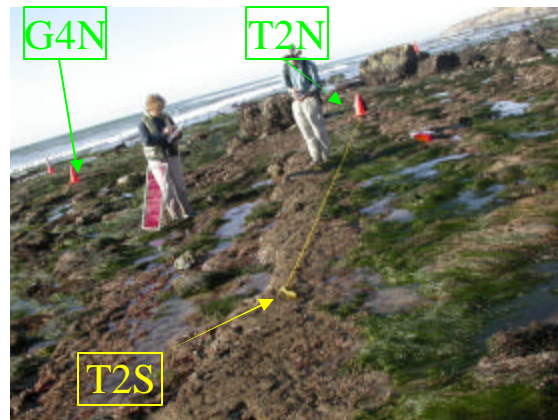
Description: Long stainless bolt on the edge of a low ridge.
Transect is not quite parallel to the ridge.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	240	28.16	201
L6	241	12.90	7
B3	256	17.98	225
Pe4	258	19.98	260
T2N	270N	10.09	148
T2C	270C	4.70	323

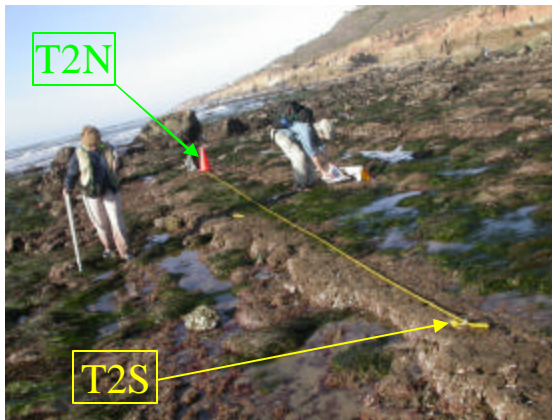
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	271N	14.20	130
G4C	271C	11.67	105
G4S	271S	11.70	70
K6N	272N	24.20	115
K6S	272S	16.24	94



Taken in 1/06, yellow tape on bolt.



Taken in 1/06, yellow tape on bolt.



Taken in 1/06, yellow tape on bolt.



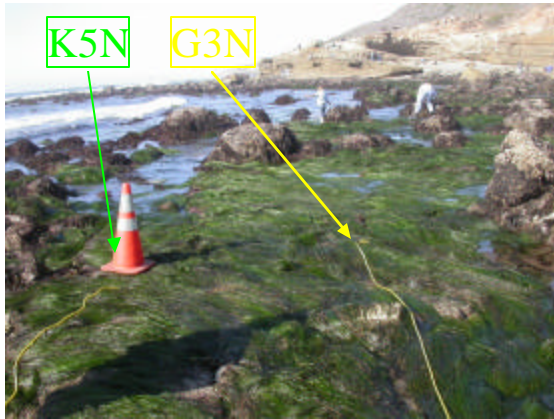
Taken in 1/06, yellow tape on bolt.

G3N (267N)

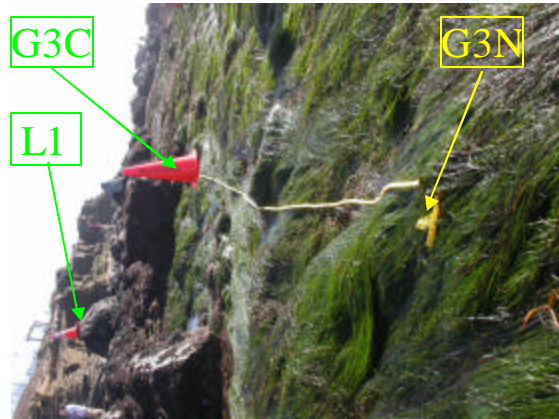
Target	Surfgrass
Type	Transect
Bolts	1 of 3, line
Coordinates	32.668326°N 117.245192°W
Height	-4.87 in.

Description: Long stainless bolt on a high point about 2m west of a cluster of boulders. Align the transect using the north and south bolts to get the right orientation, then start at 0 to the north bolt and end at 10m, which won't make it all the way to G3S. Transect runs just to the side of a medium, flat, triangle-shaped boulder.

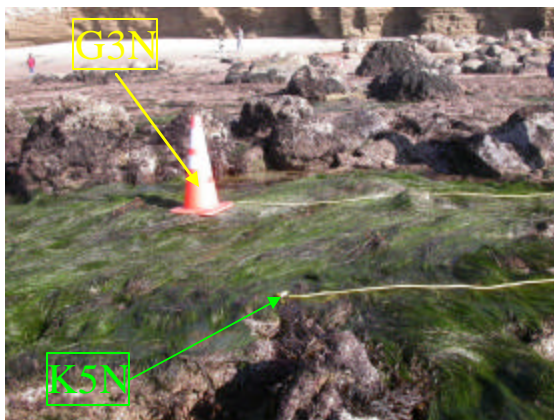
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	14.70	320
T1N	244N	12.00	290
G3C	267C	4.96	339
G3S	267S	10.64	338
K5N	268N	1.97	52
K5C	268C	6.05	360
K5S	268S	10.88	356



Taken in 1/06, yellow tape on bolt.



Taken in 1/06, yellow tape on bolt. Cone is on center bolt



Taken in 1/06, cone on bolt.



Taken in 1/06, yellow tape on bolt.

G3C (267C)

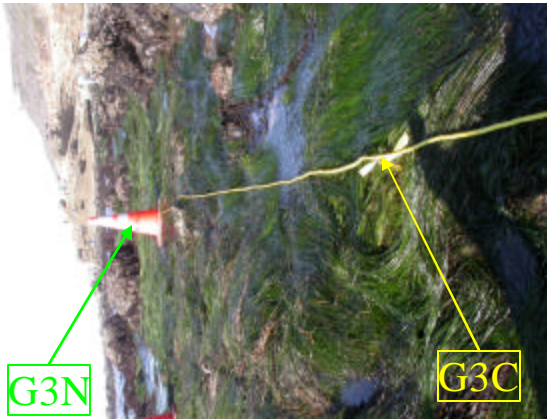
Target	Surfgrass
Type	Transect
Bolts	2 of 3, line
Coordinates	32.668281°N 117.245188°W
Height	No Data

Description: Northeast of K5C, long stainless bolt. Not next to boulder.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	267N	4.96	159
K5N	268N	4.93	135



Taken in 1/06, yellow tape on bolt, south bolt is not marked.



Taken in 1/06, yellow tape on bolt.



Taken in 1/06, yellow tape on bolt.



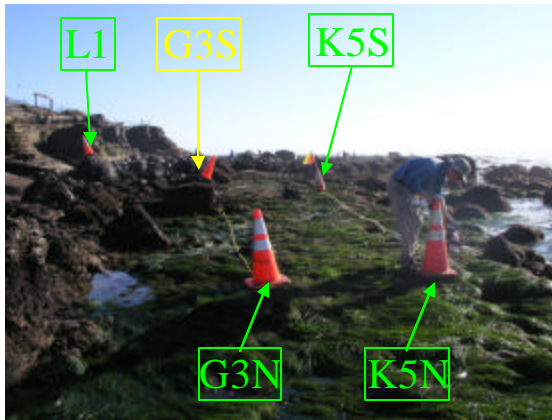
Taken in 1/06, yellow tape on bolt.

G3S (267S)

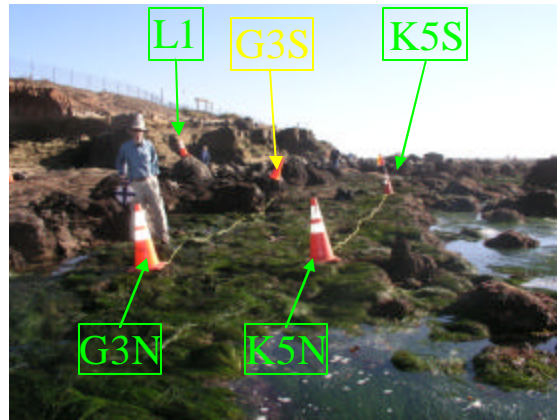
Target	Surfgrass
Type	Transect
Bolts	3 of 3, line
Coordinates	32.668234°N 117.245181°W
Height	-3.37 in.

Description: Bolt is actually on a boulder just past the end of the transect, an old copper bolt. Align the transect using the north and south bolts to get the right orientation, then start at 0 to the north bolt and end at 10m, do not read transect up on the boulder closer to this bolt. Transect runs just to the side of a medium, flat, triangle-shaped boulder.

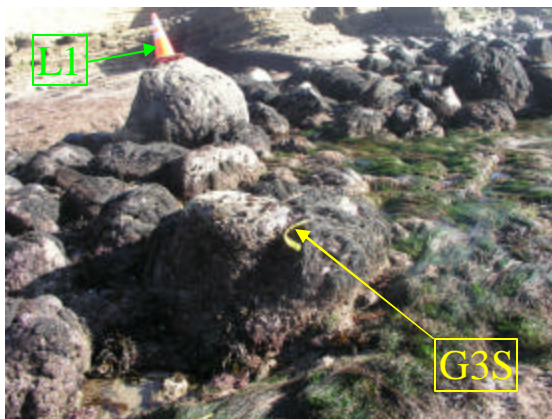
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	5.20	290
T1S	244S	10.97	265
G3N	267N	10.64	158
K5S	268S	2.90	75



Taken in 1/06, cone is over south bolt.



Taken in 1/06, cone is over south bolt.



Taken in 1/06, yellow tape on south bolt.



Taken in 1/06, yellow tape on south bolt.

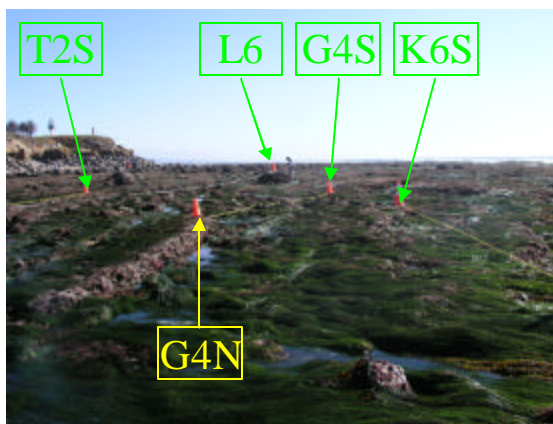
G4N (271N)

Target	Surfgrass
Type	Transect
Bolts	1 of 3, line
Coordinates	32.667277°N 117.245433°W
Height	3.39 in.

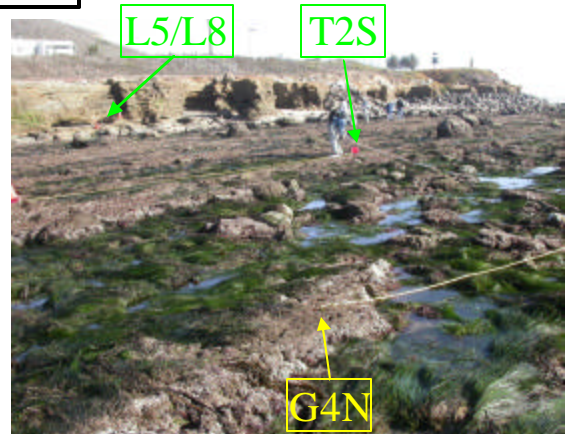
Description: Medium/short stainless bolt. Transect across bumps and pools. Bolt on high point southwest of nearest boulder. Located on southern edge of ridge. Bolt is about as far out as M5.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L6	241	21.70	345
M5	255	26.70	185
T2N	270N	8.24	251
T2C	270C	10.40	295
T2S	270S	14.20	310

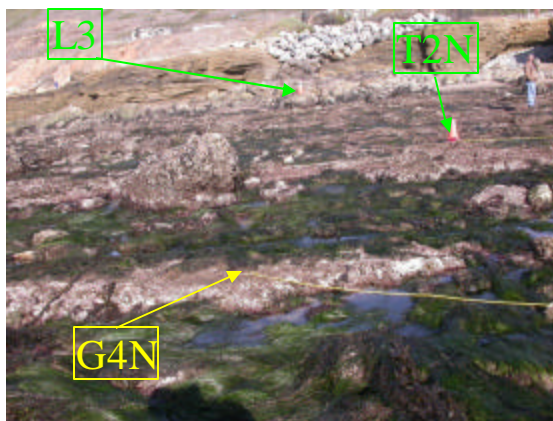
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4C	271C	5.12	355
G4S	271S	9.70	347
K6N	272N	9.58	135
K6C	272C	5.71	105
K6S	272S	5.54	45



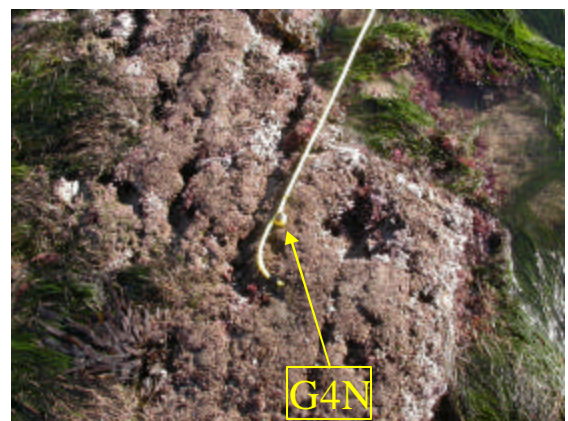
Taken in 1/06, cone is over bolt.



Taken in 1/06, yellow rope wrapped around bolt.



Taken in 1/06, yellow rope wrapped around bolt.



Taken in 1/06, yellow rope wrapped around bolt.

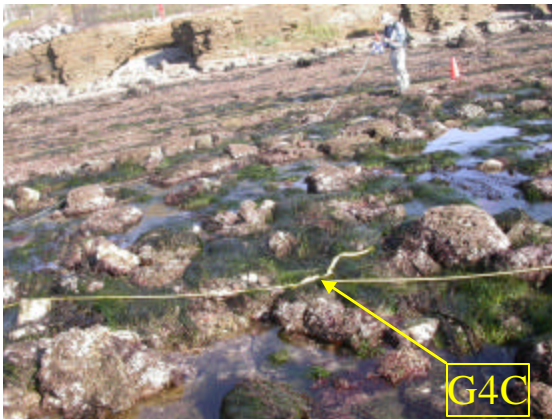
G4C (271C)

Target	Surfgrass
Type	Transect
Bolts	2 of 3, line
Coordinates	32.667233°N 117.245426°W
Height	No Data

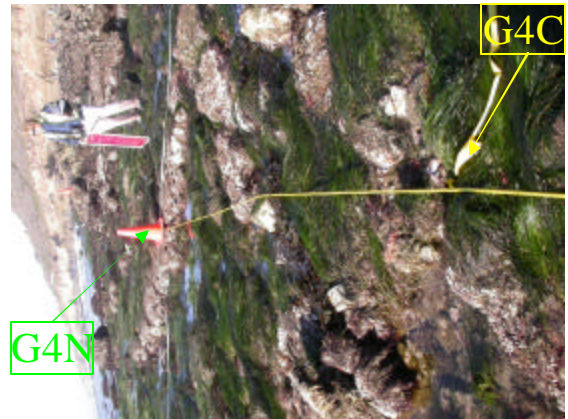
Description: Medium stainless bolt. Tucked on side of medium sized rock.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L6	241	16.83	335
T2N	270N	10.05	230
T2C	270C	9.36	260
T2S	270S	11.67	285

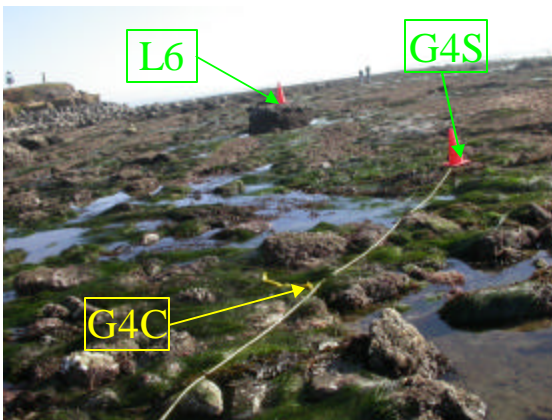
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	271N	5.12	175
G4S	271S	4.52	347
K6N	272N	13.63	145
K6C	272C	8.41	135
K6S	272S	4.55	105



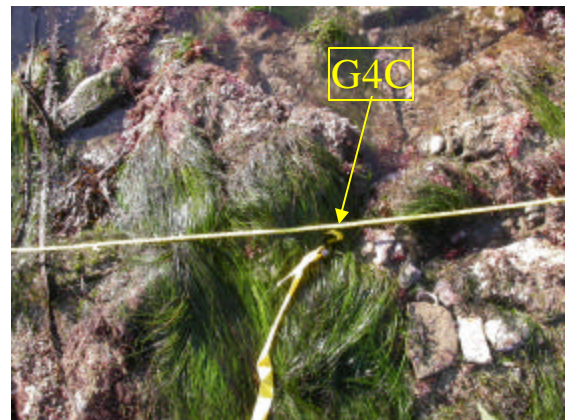
Taken in 1/06, yellow tape wrapped around bolt.



Taken in 1/06, yellow tape wrapped around bolt. Ignore the transect tape.



Taken in 1/06, yellow tape wrapped around bolt.



Taken in 1/06, yellow tape wrapped around bolt.

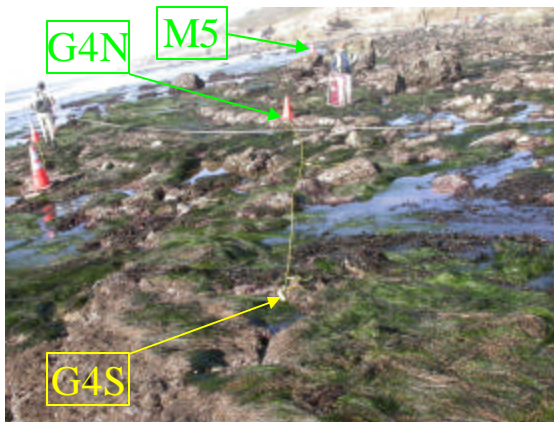
G4S (271S)

Target	Surfgrass
Type	Transect
Bolts	3 of 3, line
Coordinates	32.667187°N 117.245418°W
Height	3.14 in.

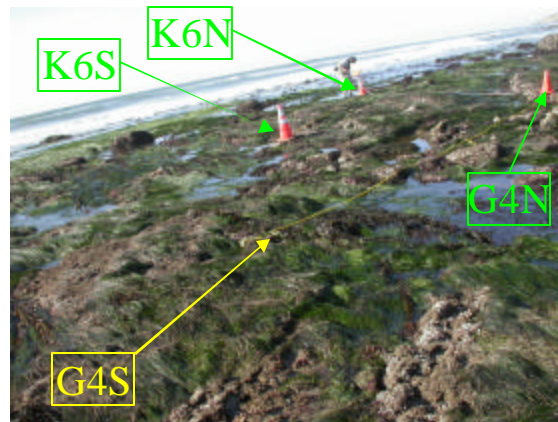
Description: Medium stainless bolt west and slightly north of L7 and about even with old red/green surfboard-shaped sign on cliff. Generally on a non-descript flat area.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L6	241	12.95	320
T2N	270N	13.60	205
T2C	270C	11.16	240
T2S	270S	11.70	250

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	271N	9.70	167
G4C	271N	4.52	347
K6N	272N	17.46	155
K6C	272C	11.93	155
K6S	272S	7.17	150



Taken in 1/06, yellow string tape around bolt. Ignore the transect line.



Taken in 1/06, yellow tape wrapped around bolt. Ignore the transect line.



Taken in 1/06, yellow tape wrapped around bolt.



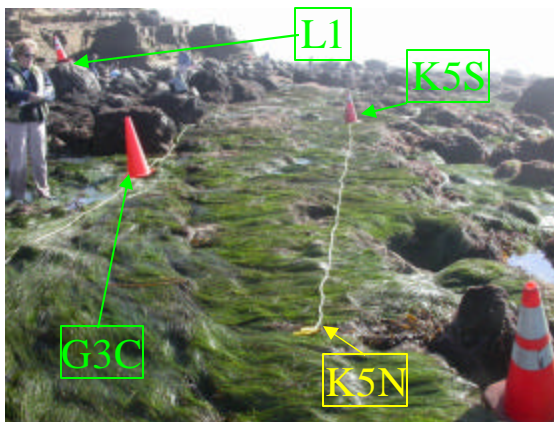
Taken in 1/06, yellow tape wrapped around bolt.

K5N (268N)

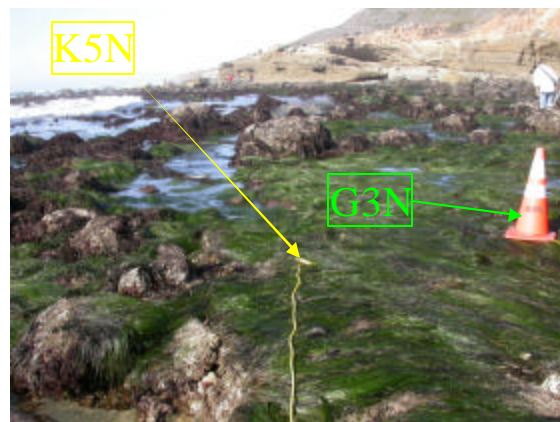
Target	Boa Kelp
Type	Transect
Bolts	1 of 3, line
Coordinates	32.668323°N 117.245207°W
Height	-4.12 in.

Description: Long stainless bolt slightly southwest of G3N, approximately west of T1N. Transect runs along the edge of the furthest ridge.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	15.00	310
G3N	267N	1.97	232
G3C	267C	4.93	315
K5C	268C	5.12	345
K5S	268S	10.10	341



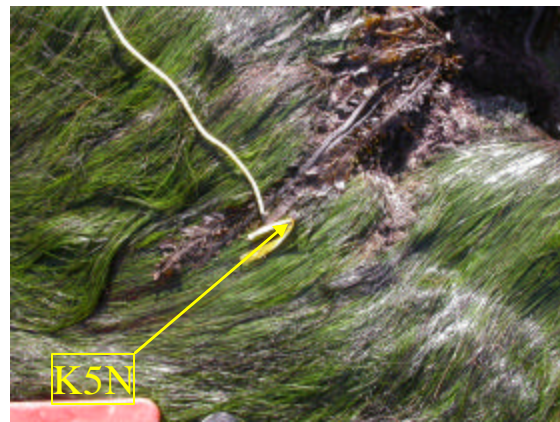
Taken in 1/06, tape around bolt. G3N is not marked, the cone is on G3C. The cone in the front does not mark anything.



Taken in 1/06, tape around bolt.



Taken in 1/06, tape around bolt.
Last Update: Jun-06



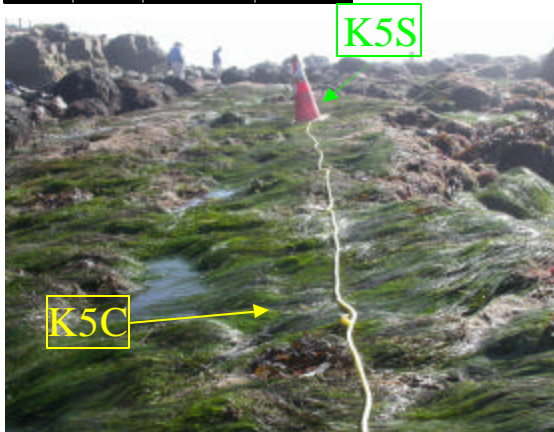
Taken in 1/06, tape around bolt.

K5C (268C)

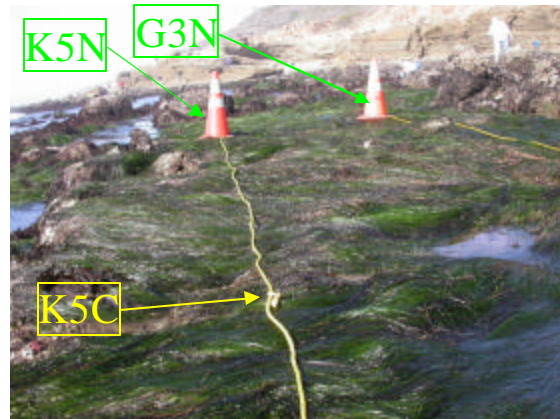
Target	Boa Kelp
Type	Transect
Bolts	2 of 3, line
Coordinates	32.668277°N 117.245208°W
Height	-4.37

Description: Long stainless bolt slightly southwest of G3C.

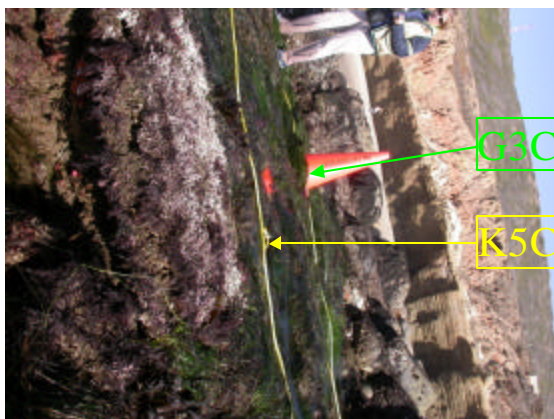
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	267N	6.05	180
K5N	268N	5.12	165
K5S	268S	5.00	341



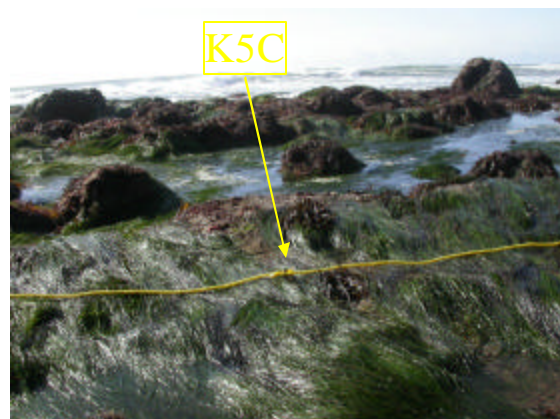
Taken in 1/06, bolt marked with yellow tape.



Taken in 1/06, bolt marked with yellow tape.



Taken in 1/06, bolt marked with yellow tape.
(Photo rotated by 90°).



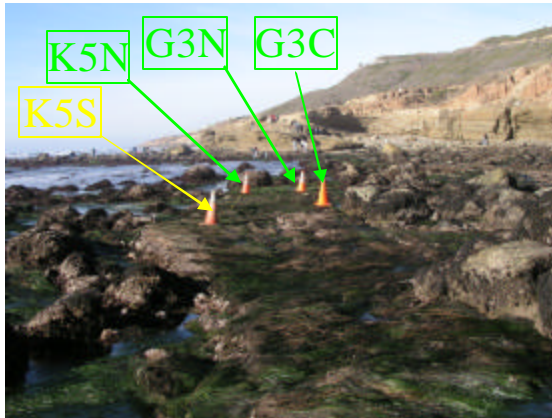
Taken in 1/06, bolt marked with yellow tape.

K5S (268S)

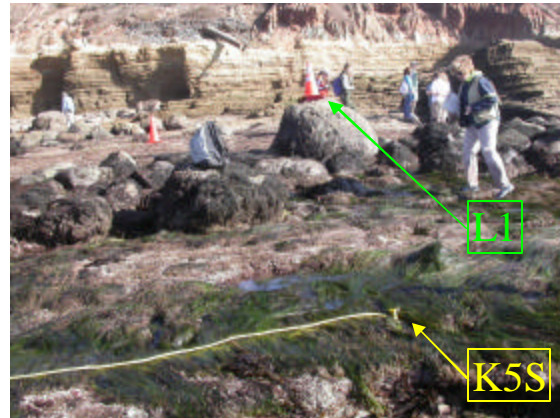
Target	Boa Kelp
Type	Transect
Bolts	3 of 3, line
Coordinates	32.668232°N 117.245208°W
Height	-1.62 in.

Description: Long stainless bolt, northwest of L1. West of boulder where G3 ends. Transect runs along the edge of the furthest ridge.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	239	8.08	275
G3N	267N	10.88	176
G3S	267S	2.90	255
K5N	268N	10.10	161
K5C	268C	5.00	161



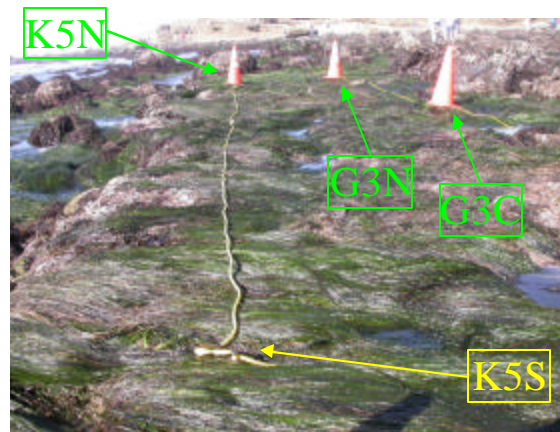
Taken in 1/06, cone is over bolt. G3S is not marked, G3C is.



Taken in 1/06, bolt is marked with yellow tape.



Taken in 1/06, bolt marked with yellow tape. (Photo rotated by 90°).



Taken in 1/06, bolt is marked with yellow tape. Cone is on G3C.

Last Update: Jun-06

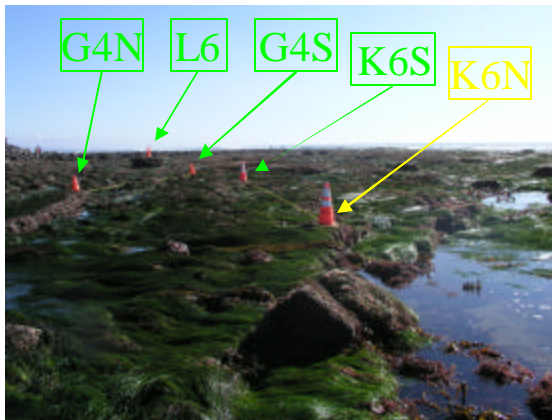
K6N (272N)

Target	Boa Kelp
Type	Transect
Bolts	1 of 3, line
Coordinates	32.667314°N 117.245521°W
Height	-0.87 in.

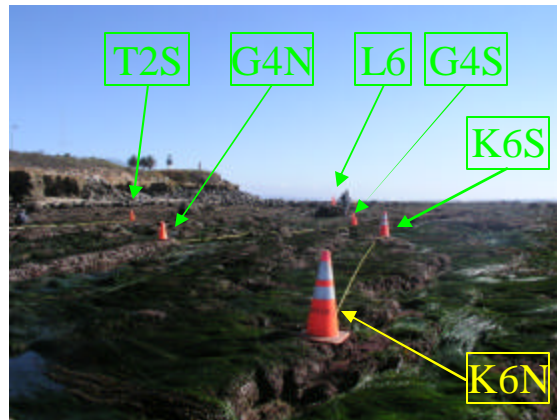
Description: Long stainless bolt on edge of ridge where it is “step-like”. Due west of L3 and due south of the really big boulder.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	240	35.31	241
L6	241	30.40	316
M5(UL)	255	22.92	193
T2N	270N	16.88	275
T2S	270S	24.20	295

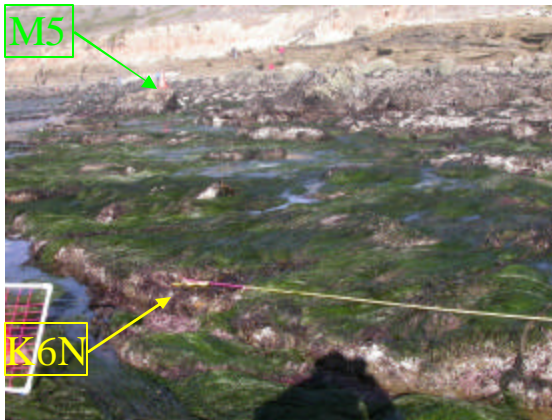
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	271N	9.58	315
G4C	271C	13.63	325
G4S	271S	17.46	335
K6C	272C	5.61	340
K6S	272S	10.46	325



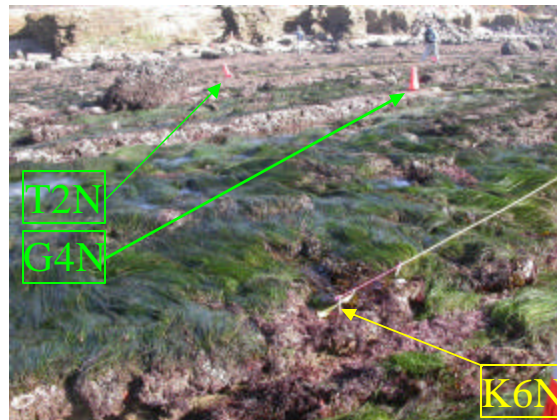
Taken in 1/06, cone is over bolt.



Taken in 1/06, cone is over bolts.



Taken in 1/06. Yellow tape on bolt.



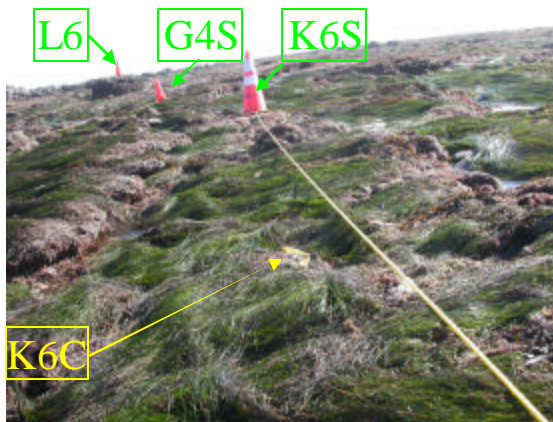
Taken in 1/06. Yellow tape on bolt.

K6C (272C)

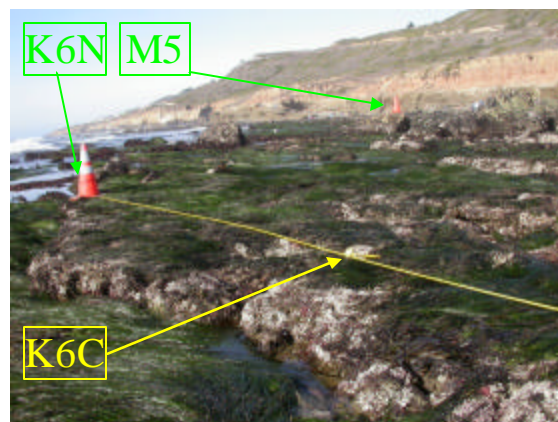
Target	Boa Kelp
Type	Transect
Bolts	2 of 3, line
Coordinates	32.667275°N 117.245496°W
Height	No Data

Description: Short stainless bolt a little east of transect where ridge bends outward. Approximately west of the nearest boulder.

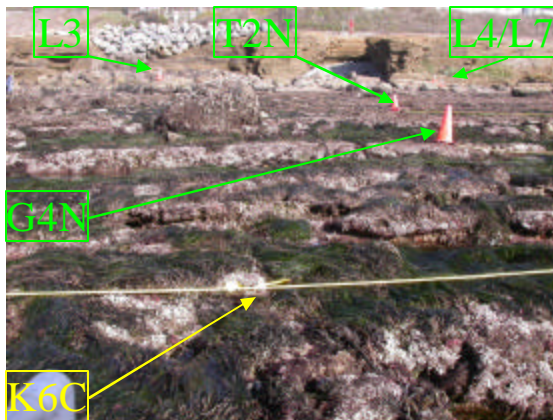
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L6	241	24.83	330
G4N	271N	5.71	285
G4C	271C	8.41	315
G4S	271S	11.93	335
K6N	272N	5.61	160
K6S	272S	4.91	327



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.

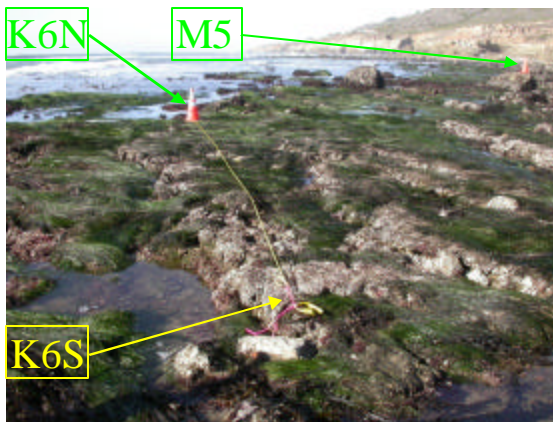
K6S (272S)

Target	Boa Kelp
Type	Transect
Bolts	3 of 3, line
Coordinates	32.667236°N 117.245469°W
Height	4.64 in.

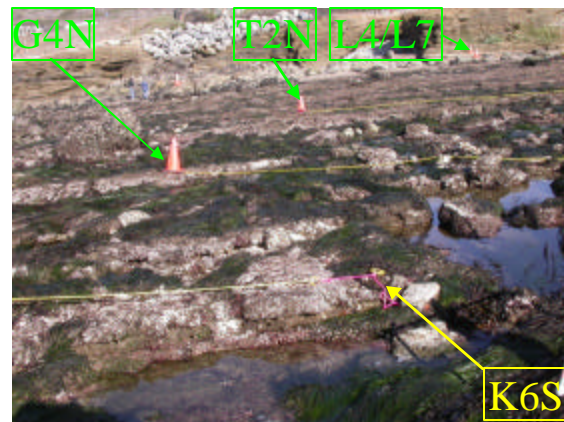
Description: Medium stainless bolt on very end of ridge, where it comes to a point. Transect approximately parallel to the ridge.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L6	241	20.10	330
T2N	270N	13.20	238
T2S	270S	16.24	274

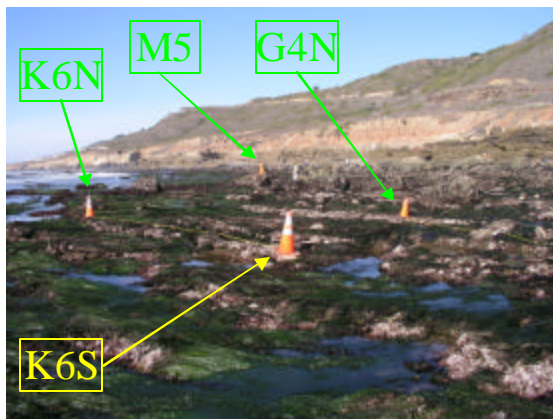
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	271N	5.54	225
G4C	271C	4.55	285
G4S	271S	7.17	330
K6N	272N	10.45	145
K6C	272C	4.91	147



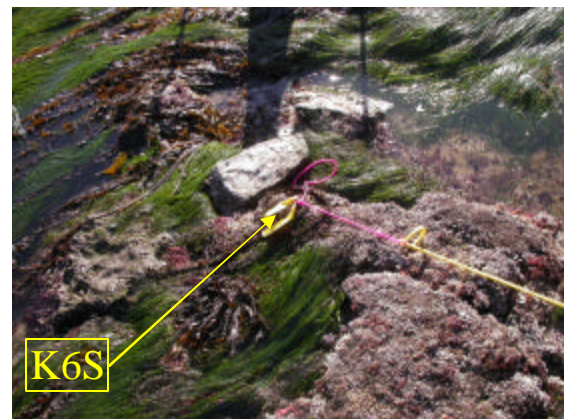
Taken in 1/06. Yellow tape on bolt.



Taken in 1/06. Yellow tape on bolt.

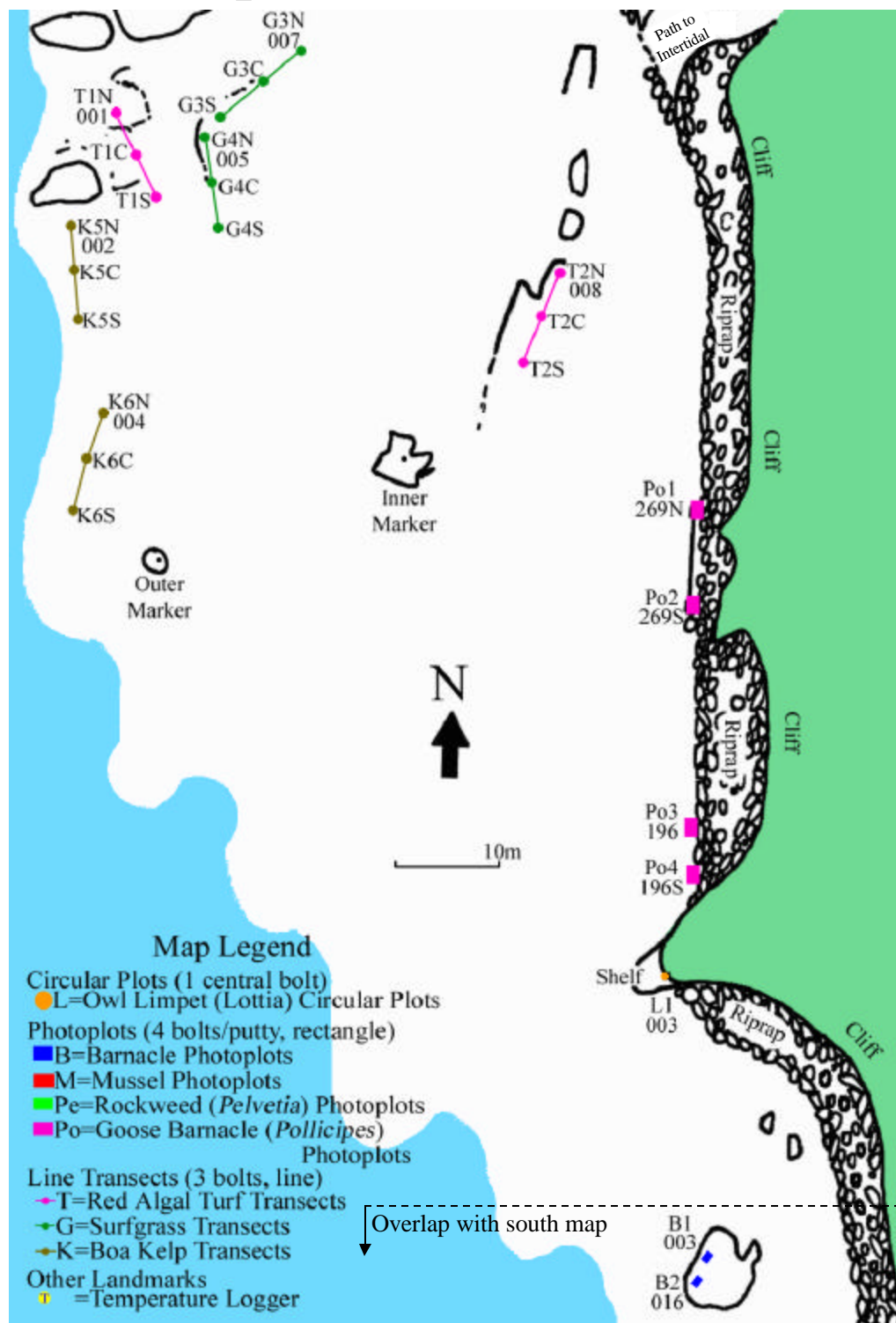


Taken in 1/06. Cone on bolt.



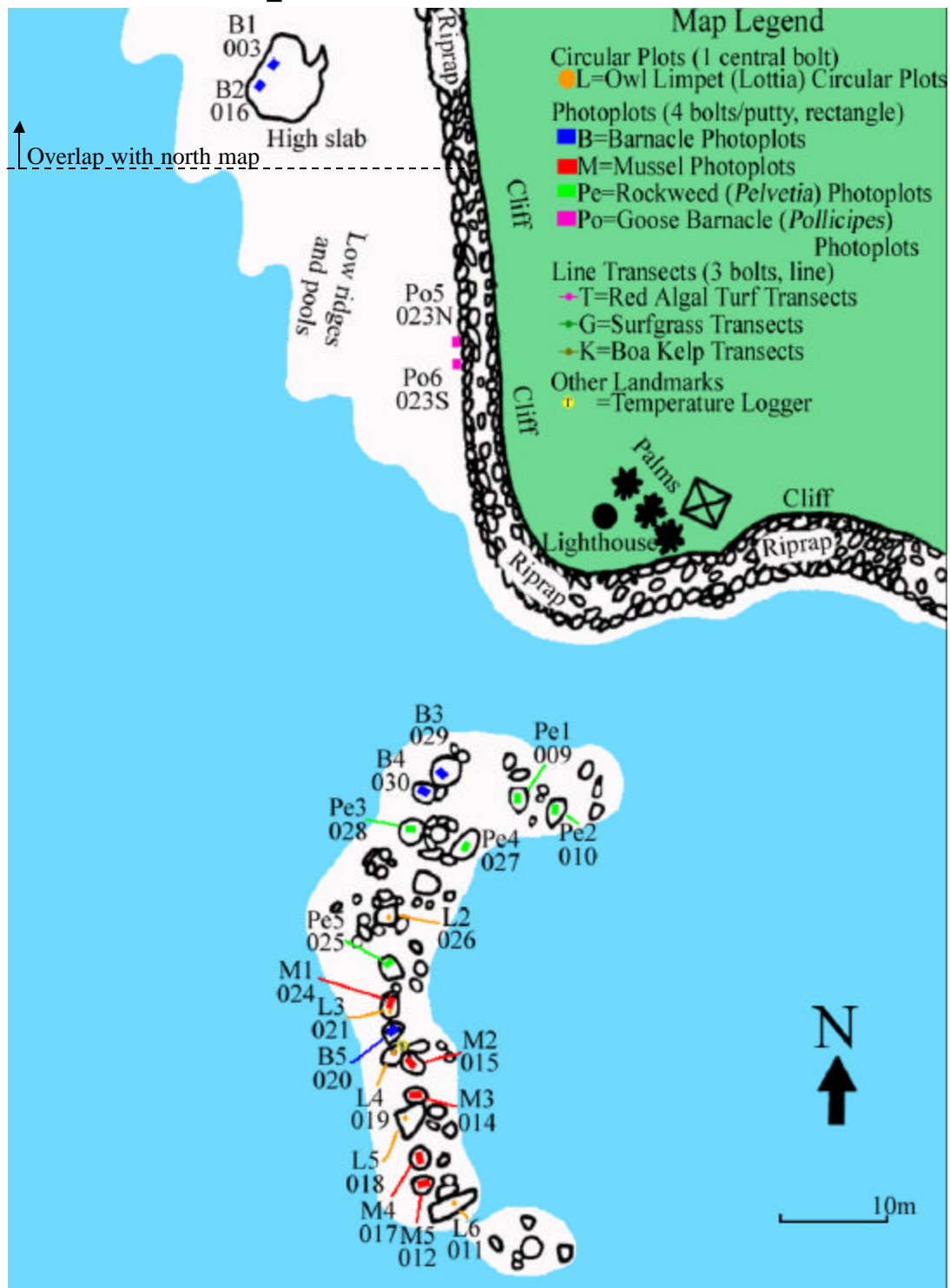
Taken in 1/06. Yellow tape on bolt.

Map of Zone III (North)



Last Update: Jun-06

Map of Zone III (South)



Site Locations (Zone III)								
Plot ID	Site ID	Plot Type	Target Species	Bolt	Lat. (°N)	Long. (°W)	Std. Dev.	Tidal Height (in above MLLW)
L1	13	Circular Plot	Owl Limpets		32.665286	-117.243425	0.172549	83.75
L2	26	Circular Plot	Owl Limpets		32.664493	-117.24267	0.114492	48.51
L3	21	Circular Plot	Owl Limpets		32.664446	-117.24261	0.155677	42.26
L4	19	Circular Plot	Owl Limpets		32.664412	-117.242608	0.101589	40.51
L5	18	Circular Plot	Owl Limpets		32.664365	-117.242586	0.13288	58.76
L6	11	Circular Plot	Owl Limpets		32.664326	-117.242424	0.157266	56.01
B1	3	Photoplot	Barnacles		32.66503	-117.243188	0.105446	32.00
B2	16	Photoplot	Barnacles		32.665011	-117.243177	0.125486	30.00
B3	29	Photoplot	Barnacles		32.66468	-117.242701	0.109777	49.01
B4	30	Photoplot	Barnacles		32.664664	-117.242703	0.092104	40.51
B5	20	Photoplot	Barnacles		32.66443	-117.242613	0.148332	44.26
M1	24	Photoplot	Mussels		32.664445	-117.242618	0.204238	35.51
M2	15	Photoplot	Mussels		32.664407	-117.242596	0.070133	28.98
M3	14	Photoplot	Mussels		32.664389	-117.242589	0.159721	43.51
M4	17	Photoplot	Mussels		32.664328	-117.242507	0.147409	36.51
M5	12	Photoplot	Mussels		32.66432	-117.242489	0.076173	42.01
Pe1	9	Photoplot	Rockweed		32.664664	-117.242621	0.125812	29.26
Pe2	10	Photoplot	Rockweed		32.664683	-117.242576	0.171752	27.26
Pe3	28	Photoplot	Rockweed		32.664625	-117.242681	0.153146	24.01
Pe4	27	Photoplot	Rockweed		32.664624	-117.242656	0.100087	30.51
Pe5	25	Photoplot	Rockweed		32.664466	-117.242651	0.120529	25.26
Po1	269N	Photoplot	Goose Barnacles		32.665606	-117.243656	0.216137	64.00
Po2	269S	Photoplot	Goose Barnacles		32.66556	-117.243615	0.12321	91.75
Po3	196	Photoplot	Goose Barnacles		32.665383	-117.243462	0.455776	69.75
Po4	196S	Photoplot	Goose Barnacles		32.665349	-117.243461	0.444158	85.25
Po5	023N	Photoplot	Goose Barnacles		32.665038	-117.242851	0.265373	59.75
Po6	023S	Photoplot	Goose Barnacles		32.665024	-117.242858	0.044647	55.00
T1	1	Line Transect	Red Algal Turf	N	32.665846	-117.244598	0.1341	40.00
				C	32.665808	-117.244576	0.10494	37.50
				S	32.665765	-117.24455	0.220791	29.25
T2	8	Line Transect	Red Algal Turf	N	32.665691	-117.244137	0.106055	31.75
				C	32.665645	-117.244123	0.071978	31.50
				S	32.665601	-117.244109	0.060929	29.50
G3	7	Line Transect	Surfgrass	N	32.665896	-117.244391	0.131219	30.25
				C	32.665869	-117.244432	n/a	27.00
				S	32.665843	-117.244473	0.128153	29.00
G4	5	Line Transect	Surfgrass	N	32.665821	-117.244485	0.154237	32.25
				C	32.665768	-117.244475	0.109003	29.00
				S	32.665733	-117.244476	0.119849	26.75
K5	2	Line Transect	Boa Kelp	N	32.665747	-117.244657	n/a	26.75
				C	32.665701	-117.244652	n/a	ND
				S	32.665657	-117.244646	n/a	24.75
K6	4	Line Transect	Boa Kelp	N	32.665567	-117.244624	n/a	4.73
				C	32.665526	-117.244641	n/a	4.23
				S	32.665481	-117.24466	n/a	1.23

Last Update: Jun-06

Interplot Measurements

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
L1	013	B1	003	37.10	315
L1	013	Po5	023N	59.80	340
L2	026	B4	030	17.73	160
L2	026	Pe3	028	11.65	180
L2	026	Pe4	027	12.20	170
L2	026	Pe5	025	5.80	360
L3	021	B5	020	1.60	360
L3	021	M1	024	0.74	180
L4	019	B5	020	1.82	180
L4	019	M2	015	1.50	315
L5	018	M3	014	2.10	180
L5	018	M4	017	5.80	360
L6	011	M5	012	1.70	160
B1	003	L1	013	37.10	135
B1	003	B2	016	1.55	345
B2	016	B1	003	1.55	165
B2	016	Po5	023N	30.60	250
B3	029	B4	030	1.95	45
B3	029	Pe1	009	7.35	270
B3	029	Pe4	027	8.10	360
B3	029	Po6	23S	33.75	180
B4	030	L2	026	17.73	340
B4	030	B3	029	1.95	225
B4	030	Pe3	028	6.25	70
B4	030	Pe4	027	6.60	340
B5	020	L3	021	1.60	180
B5	020	L4	019	1.82	360
M1	024	L3	021	0.74	360
M1	024	Pe5	025	3.00	180
M2	015	L4	019	1.50	135
M2	015	M3	014	2.90	360
M3	014	L5	018	2.10	360
M3	014	M2	015	2.90	180
M4	017	L5	018	5.80	180
M4	017	M5	012	1.70	315
M5	012	L6	011	1.70	340
M5	012	M4	017	1.70	135

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
Pe1	009	B3	029	7.35	90
Pe1	009	Pe2	010	3.60	270
Pe1	009	Pe4	027	7.80	45
Pe2	010	Pe1	009	3.60	90
Pe3	028	L2	026	11.65	360
Pe3	028	B4	030	6.25	250
Pe3	028	Pe4	027	2.30	245
Pe4	027	L2	026	12.20	350
Pe4	027	B3	029	8.10	180
Pe4	027	B4	030	6.60	160
Pe4	027	Pe1	009	7.80	225
Pe4	027	Pe3	028	2.30	65
Pe4	027	Pe5	025	16.40	345
Pe5	025	L2	026	5.80	180
Pe5	025	M1	024	3.00	360
Pe5	025	Pe4	027	16.40	165
Po1	269N	Po2	269S	8.25	320
Po1	269N	Inmk	Inmk	49.10	60
Po2	269S	Po1	269N	8.25	140
Po2	269S	Po3	196	23.80	305
Po2	269S	Inmk	Inmk	54.50	70
Po3	196	Po2	269S	23.80	125
Po3	196	Po4	196S	3.82	305
Po4	196S	Po3	196	3.82	125
Po4	196S	Po5	023N	68.62	290
Po5	023N	L1	013	59.80	160
Po5	023N	B2	016	30.6	70
Po5	023N	Po4	196S	68.62	110
Po5	023N	Po6	023S	1.72	350
Po6	023S	B3	029	33.75	360
Po6	023S	Po5	023N	1.72	170

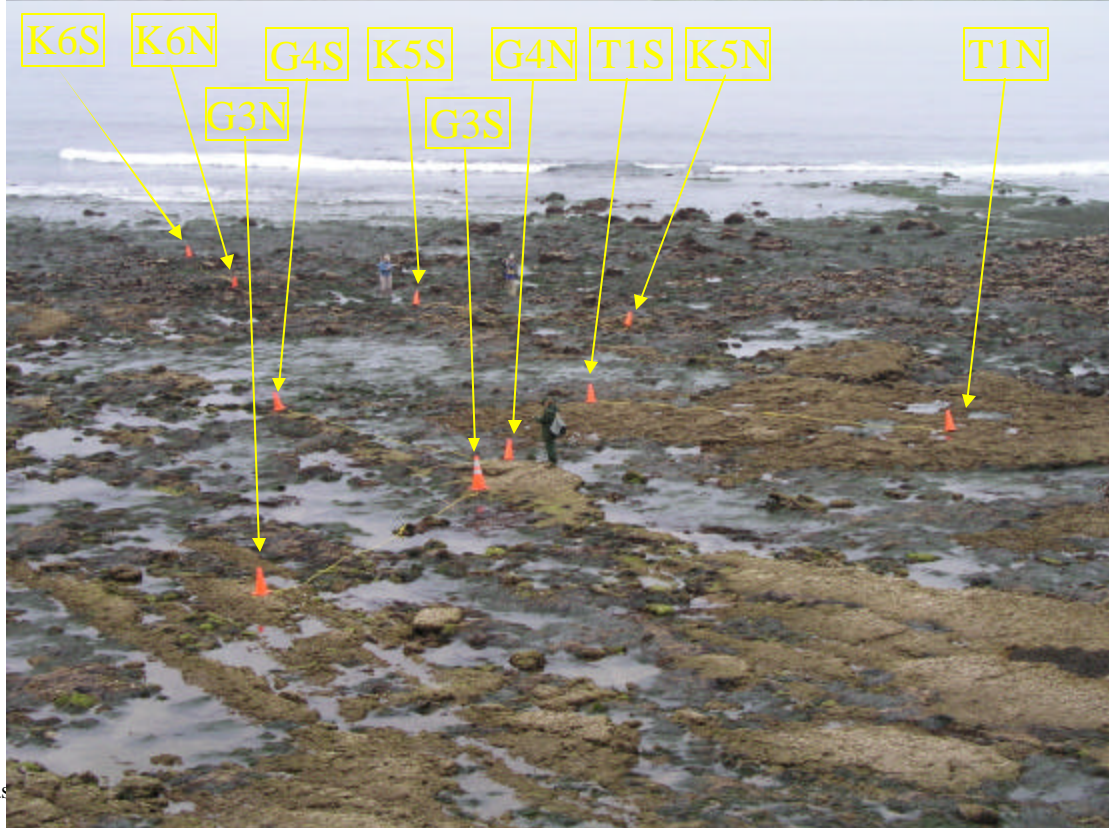
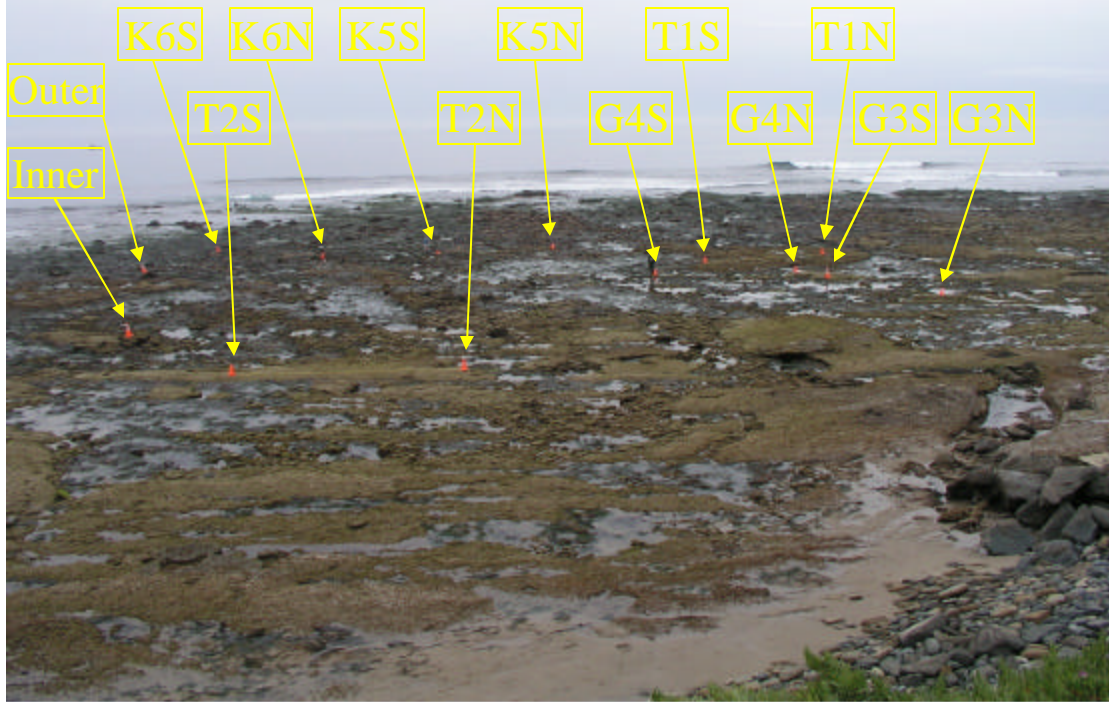
Interplot Measurements

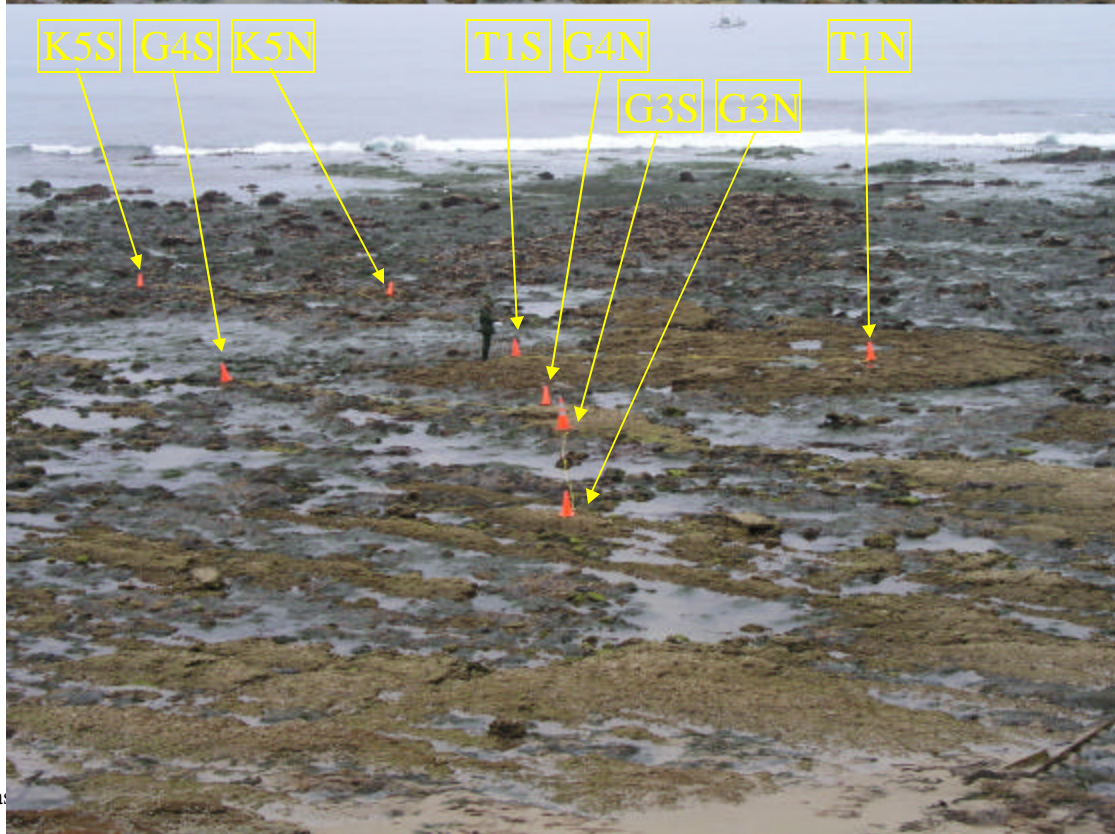
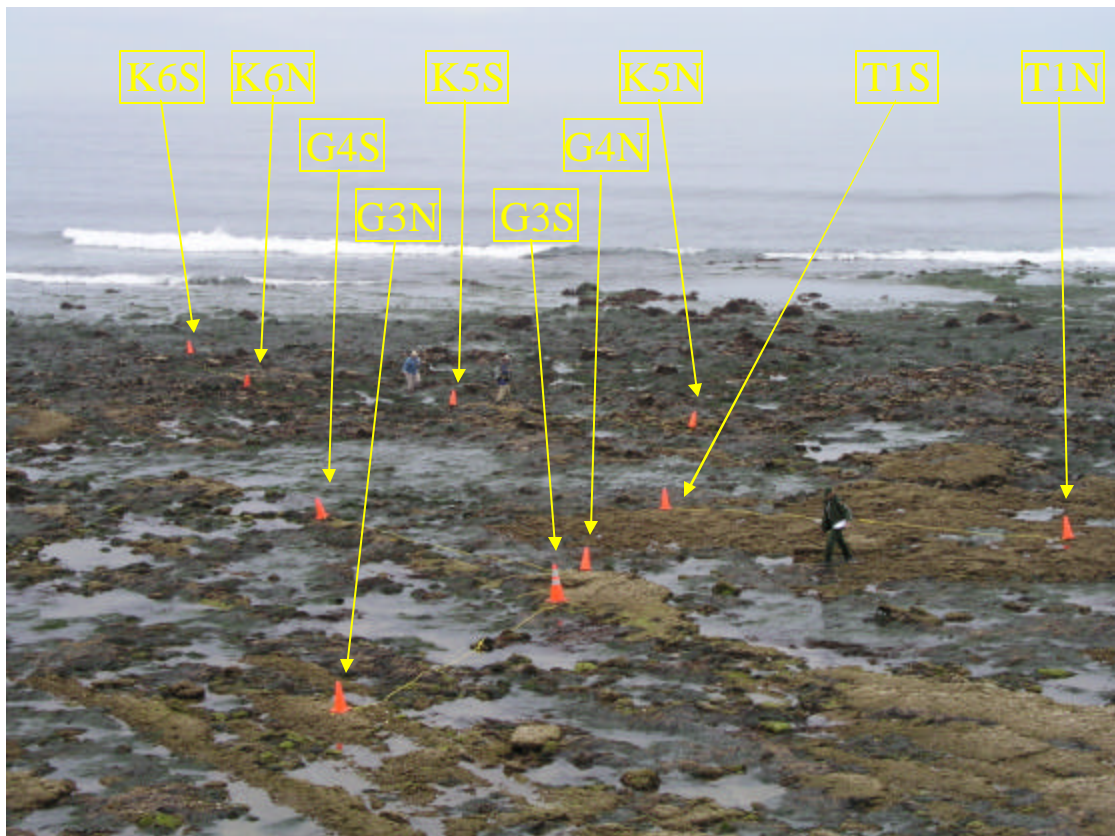
TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
T1N	001N	T1C	001C	4.93	335
T1N	001N	T1S	001S	10.06	320
T1N	001N	G3N	007N	20.45	255
T1N	001N	G4N	005N	10.51	270
T1N	001N	G4S	005S	16.92	320
T1N	001N	K5N	002N	22.60	360
T1C	001C	T1N	001N	4.93	155
T1C	001C	G3N	007N	20.21	235
T1C	001C	G4N	005N	8.22	255
T1C	001C	G4S	005S	12.25	310
T1S	001S	T1N	001N	10.06	140
T1S	001S	G3N	007N	21.45	220
T1S	001S	G4N	005N	8.85	220
T1S	001S	G4S	005S	7.88	300
T1S	001S	K5N	002N	15.90	20
T2N	008N	T2C	008C	4.95	345
T2N	008N	T2S	008S	9.97	345
T2N	008N	G3N	007N	33.65	130
T2N	008N	G4N	005N	36.45	160
T2N	008N	Inmk	Inmk	19.05	20
T2C	008C	T2N	008N	4.95	165
T2C	008C	Inmk	Inmk	14.74	20
T2S	008S	T2N	008N	9.97	165
T2S	008S	Inmk	Inmk	10.95	45

TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
G3N	007N	T1N	001N	20.45	75
G3N	007N	T1C	001C	20.21	55
G3N	007N	T1S	001S	21.45	40
G3N	007N	T2N	008N	33.65	310
G3N	007N	G3C	007C	5	45
G3N	007N	G3S	007S	9.87	45
G3N	007N	G4N	005N	12.64	45
G3N	007N	G4S	005S	20.22	20
G3C	007C	G3N	007N	5.00	225
G3S	007S	G3N	007N	9.87	225
G3S	007S	G4N	005N	2.79	40
G3S	007S	G4S	005S	12.03	5
G4N	005N	T1N	001N	10.51	90
G4N	005N	T1C	001C	8.22	75
G4N	005N	T1S	001S	8.85	40
G4N	005N	T2N	008N	36.45	340
G4N	005N	G3N	007N	12.64	225
G4N	005N	G3S	007S	2.79	220
G4N	005N	G4C	005C	5.03	340
G4N	005N	G4S	005S	10.07	340
G4C	005C	G4N	005N	5.03	160
G4S	005S	T1N	001N	16.92	140
G4S	005S	T1C	001C	12.25	130
G4S	005S	T1S	001S	7.88	120
G4S	005S	G3N	007N	20.22	200
G4S	005S	G3S	007S	12.03	185
G4S	005S	G4N	005N	10.07	160
G4S	005S	K5N	002N	18.80	50
G4S	005S	Outmk	Outmk	36.60	340

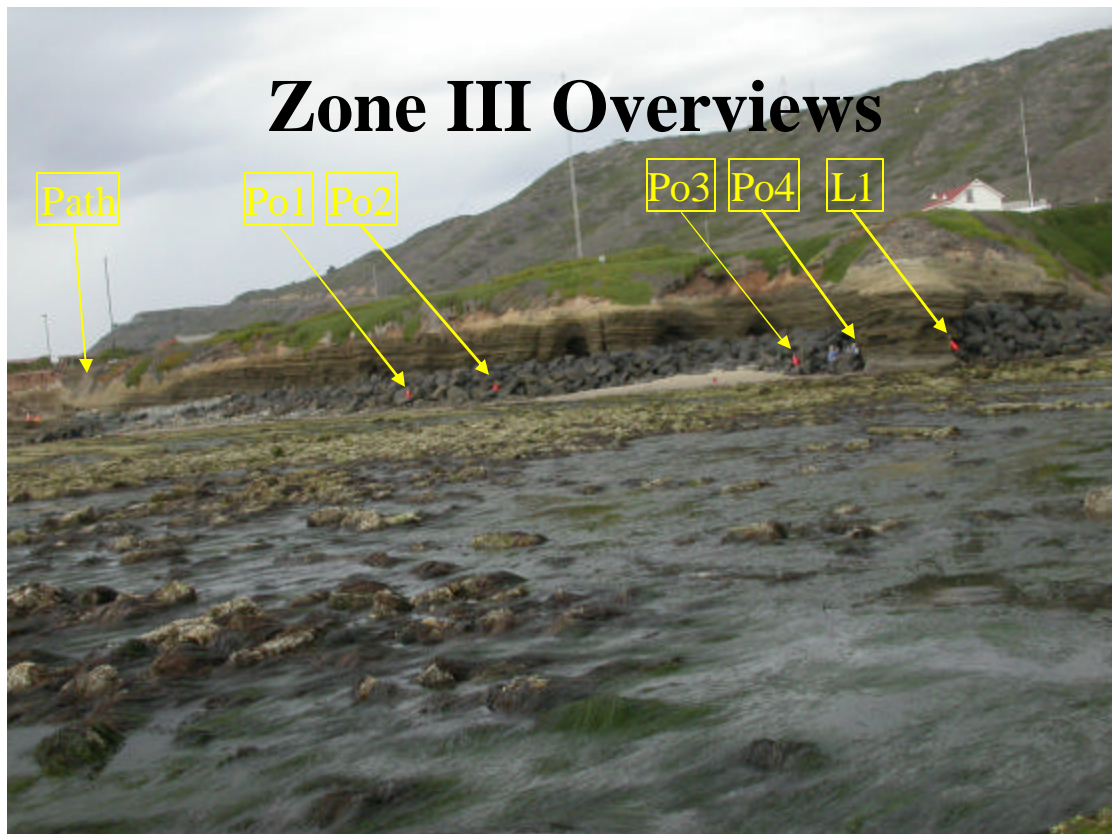
TO (Plot)	TO (Site)	FROM (Plot)	FROM (Site)	DISTANCE	BEARING
K5N	002N	T1N	001N	22.60	180
K5N	002N	T1S	001S	15.90	200
K5N	002N	G4S	005S	18.80	230
K5N	002N	K5C	002C	4.54	150
K5N	002N	K5S	002S	9.53	330
K5N	002N	K6N	004N	19.20	360
K5N	002N	Outmk	Outmk	33.35	360
K5C	002C	K5N	002N	4.54	150
K5S	002S	K5N	002N	9.53	150
K5S	002S	K6N	004N	7.80	340
K5S	002S	K6S	004S	19.85	45
K5S	002S	Outmk	Outmk	24.70	300
K6N	004N	K5N	002N	19.20	180
K6N	004N	K5S	002S	7.80	160
K6N	004N	K6C	004C	3.17	10
K6N	004N	K6S	004S	10.80	350
K6N	004N	Outmk	Outmk	16.55	340
K6C	004C	K6N	004N	3.17	190
K6C	004C	K6S	004S	7.65	12
K6S	004S	K5S	002S	19.85	225
K6S	004S	K6N	004N	10.80	170
K6S	004S	K6C	004C	7.65	192
K6S	004S	Outmk	Outmk	16.84	225
Inmk	Inmk	Po1	269N	49.10	240
Inmk	Inmk	Po2	269S	54.5	250
Inmk	Inmk	T2N	008N	19.05	200
Inmk	Inmk	T2C	008C	14.74	200
Inmk	Inmk	T2S	008S	10.95	225
Inmk	Inmk	Outmk	Outmk	26.30	45
Outmk	Outmk	G4S	005S	36.60	160
Outmk	Outmk	K5N	002N	33.35	180
Outmk	Outmk	K5S	002S	24.70	120
Outmk	Outmk	K6N	004N	16.55	160
Outmk	Outmk	K6S	004S	16.84	45
Outmk	Outmk	Inmk	Inmk	26.30	225

Zone III Overviews

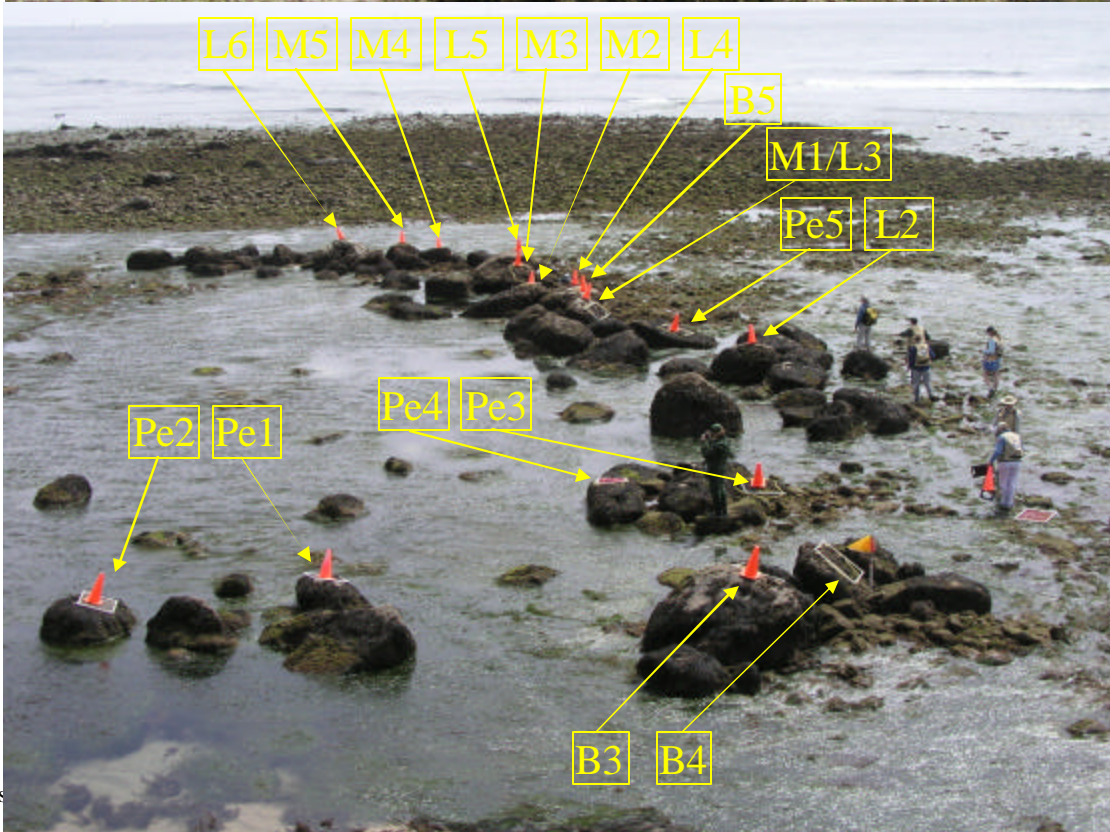




Zone III Overviews



Zone III Overviews

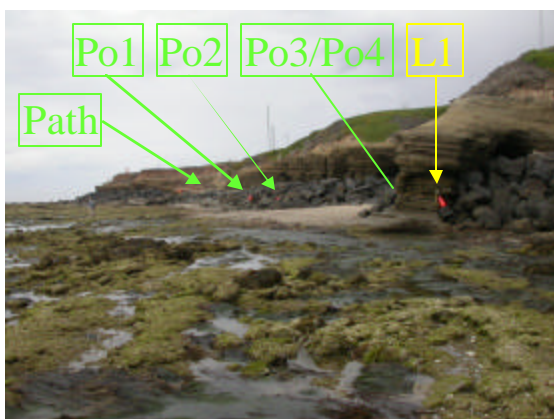


L1 (013)

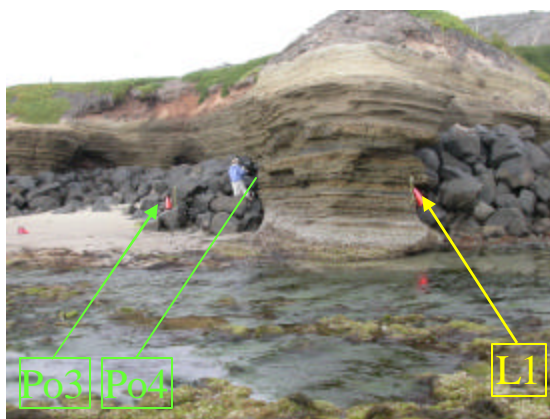
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.665286°N 117.243425°W
Height	83.75 in.

Description: On sandstone cliff on little point that splits Zone III. Around the corner from Po4. Plot flows onto rip rap on the right.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B1	003	37.10	315
Po5	023N	59.80	340



Taken in 2/06. Cone next to bolt, which has a yellow rope around it.



Taken in 2/06. Cone next to bolt, which has a yellow rope around it.



Taken in 2/06. Cone next to bolt, which has a yellow rope around it.



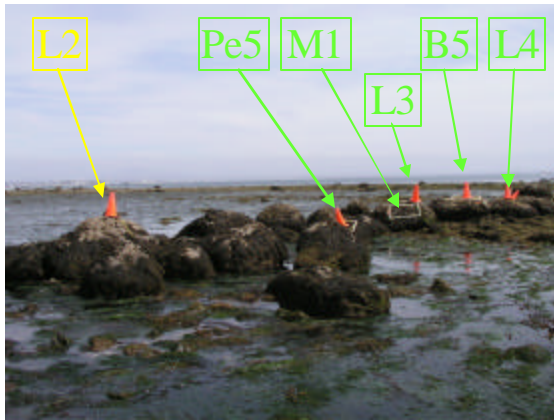
Taken in 2/06. Cone next to bolt, which has a yellow rope around it.

L2 (026)

Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.664493°N 117.24267°W
Height	48.51 in.

Description: Replace in SP06 with medium height stainless bolt.

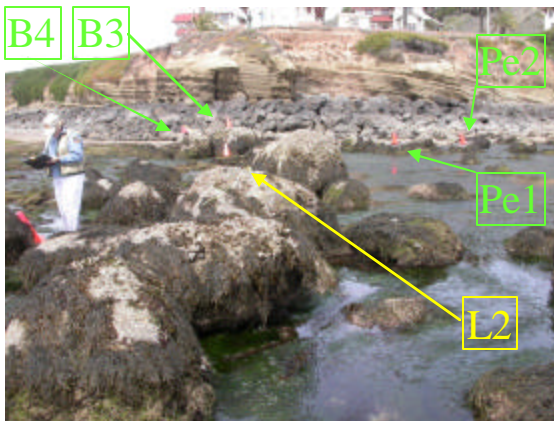
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B4	030	17.73	160
Pe3	028	11.65	180
Pe4	027	12.20	170
Pe5	025	5.80	360



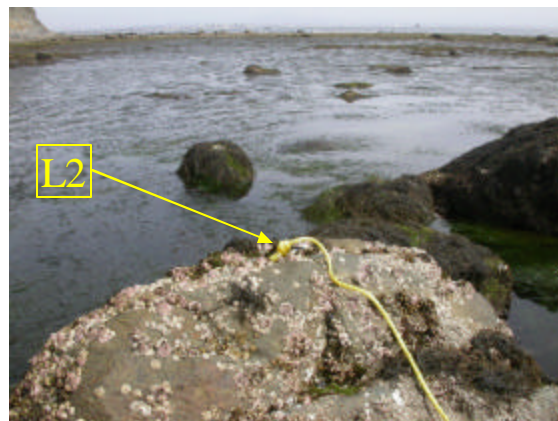
Taken in 3/06. Cone on bolt.



Taken in 3/06. Yellow rope around bolt.



Taken in 3/06. Yellow rope around bolt.



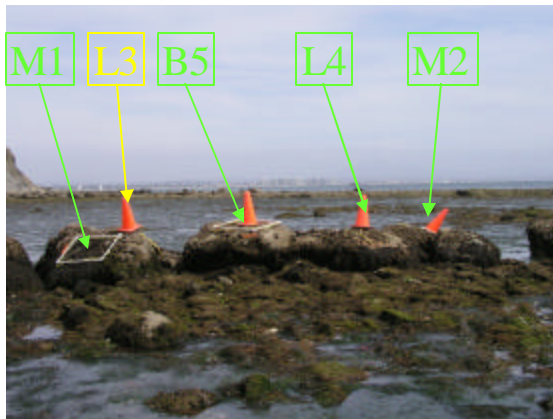
Taken in 3/06. Yellow rope around bolt.

L3 (021)

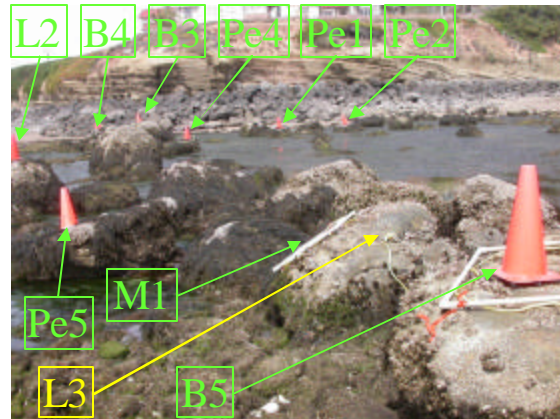
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.664446°N 117.242610°W
Height	42.26 in.

Description: Located on the same boulder as M1, but the Lottia bolt is outside of the plot on the south side of boulder. Boulder is next to B5, with a slanted flat surface. Lottia bolt replaced in SP06 with a medium length stainless bolt.

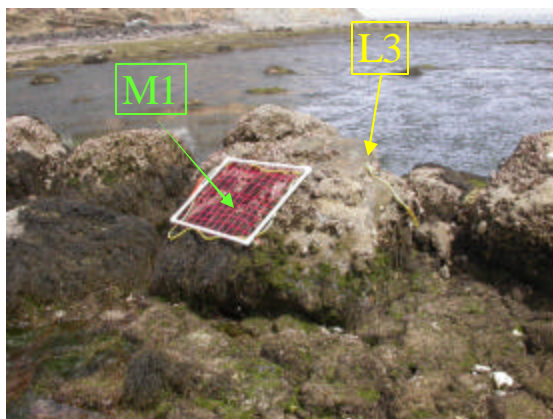
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B5	020	1.60	360
M1	024	0.74	180



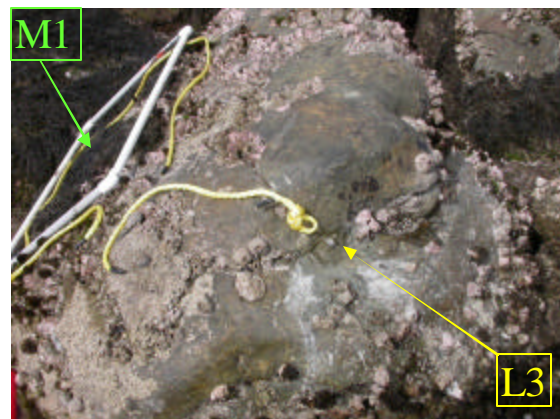
Taken in 3/06. Cone on bolt.



Taken in 3/06. Yellow rope around bolt.



Taken in 3/06. Yellow rope around bolt.



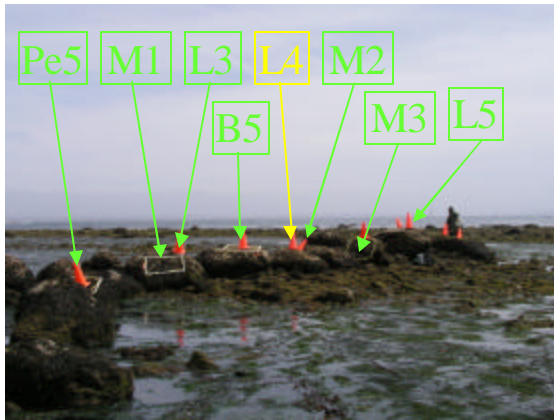
Taken in 3/06. Rope laying next to bolt, which was newly installed.

L4 (019)

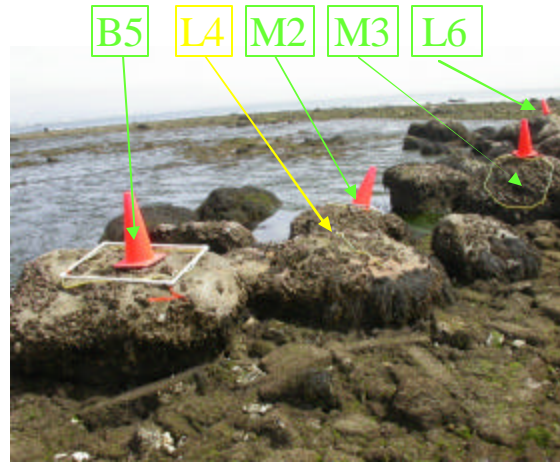
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.664412°N 117.242608°W
Height	40.51 in.

Description: The boulder is oval shaped, large and wide. It is in between the boulders containing B5 and M2. Boulder is covered in barnacles and mussels (2006). A new, tall stainless bolt, added in FA05. Old copper bolt is still there, but use the stainless one.

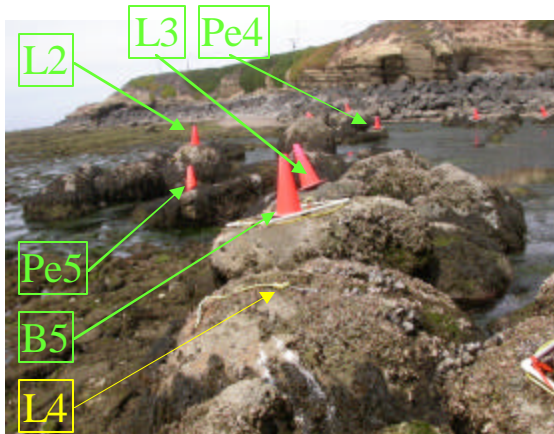
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B5	020	1.82	180
M2	015	1.50	315



Taken in 3/06. Cone on bolt.



Taken in 3/06. Yellow rope on bolt.



Taken in 3/06. Yellow rope on bolt.



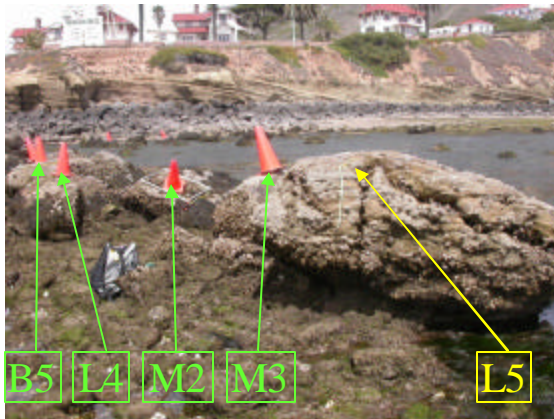
Taken in 3/06. Yellow rope around bolt.

L5 (018)

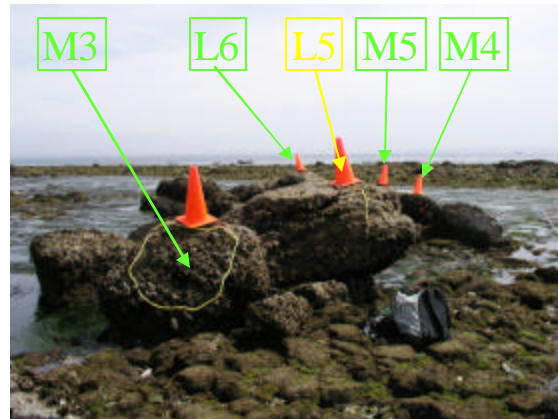
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.664365°N 117.242568°W
Height	58.76 in.

Description: Large boulder with many cracks, just before the line of boulders begins to turn to the east. Replaced with a new stainless bolt in SP06. Stainless bolt is medium length (use this one) next to the old copper bolt. Bolt is on the top of the boulder at the edge of a little hole.

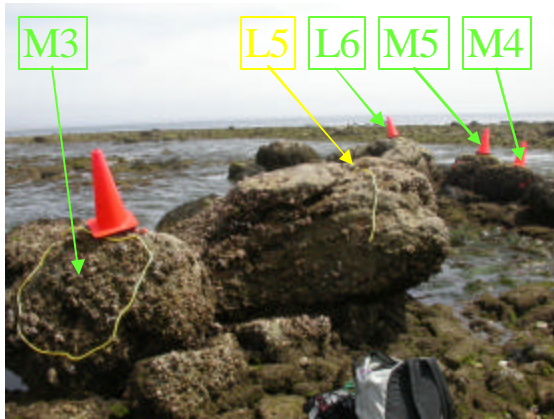
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
M3	014	2.10	180
M4	017	5.80	360



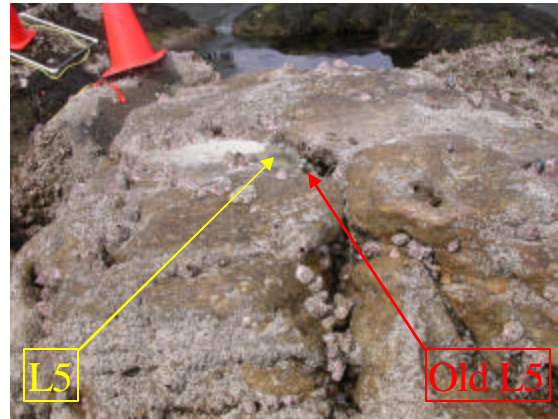
Taken in 3/06. Yellow rope around bolt.



Taken in 3/06. Cone and yellow rope around bolt.



Taken in 3/06. Yellow rope around bolt.



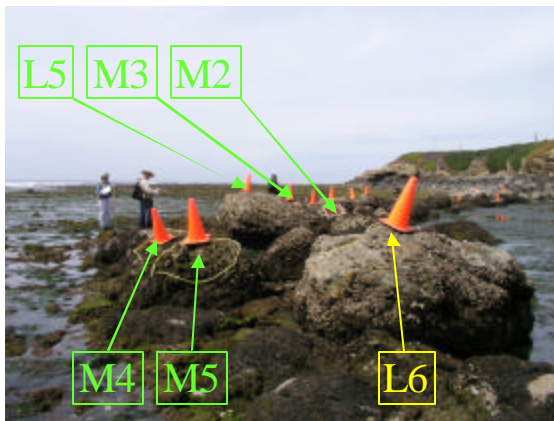
Taken in 3/06. Nothing around bolt. There is an old copper bolt and a new stainless bolt. Use the new one.

L6 (011)

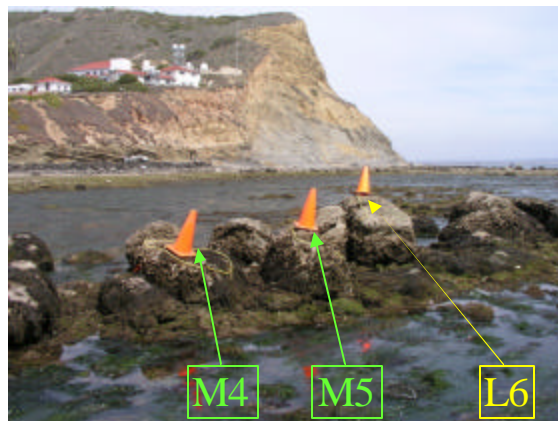
Target	Owl Limpets
Type	Circular
Bolts	1
Coordinates	32.664326°N 117.242424°W
Height	56.01 in.

Description: The boulder is pretty large (a little smaller than L5), east of the main line of boulders. Medium height stainless bolt was installed to replace the old copper bolt in SP06.

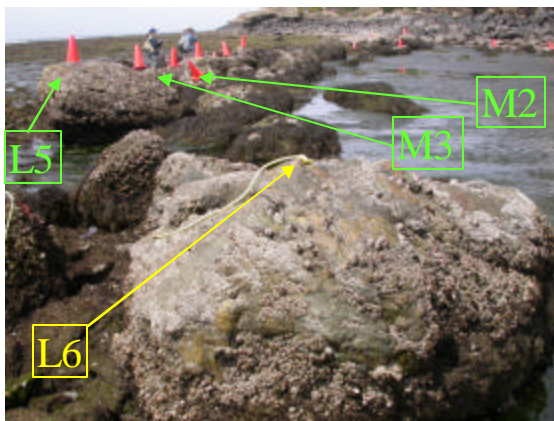
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
M5	012	1.70	160



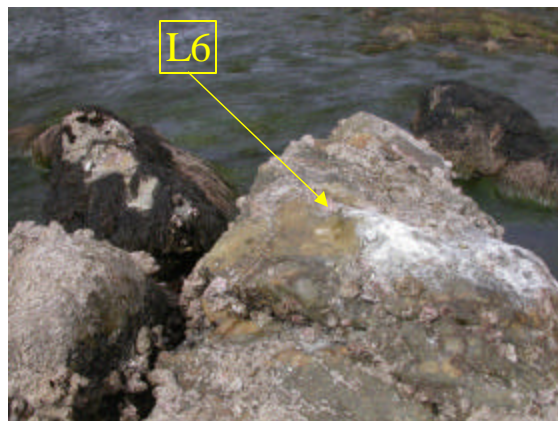
Taken in 3/06. Cone on bolt.



Taken in 3/06. Cone on bolt.



Taken in 3/06. Yellow rope around bolt.

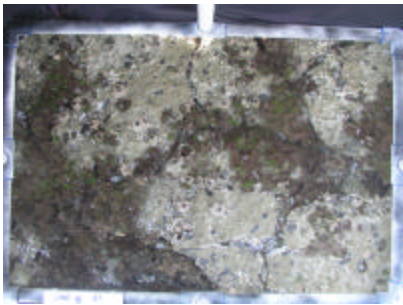


Taken in 3/06. New bolt installed, no marker on it.

B1 (003)

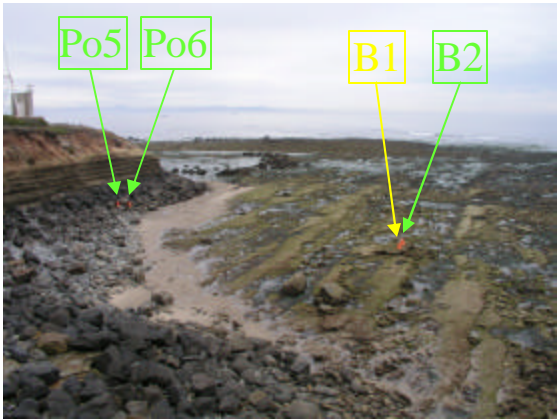
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.665030°N 117.243188°W
Height	32.00 in.

Description: On the same mesa as and north of B2. Mesa is between point with L1 and end of rip rap. Due west of 3 palms by lighthouse.

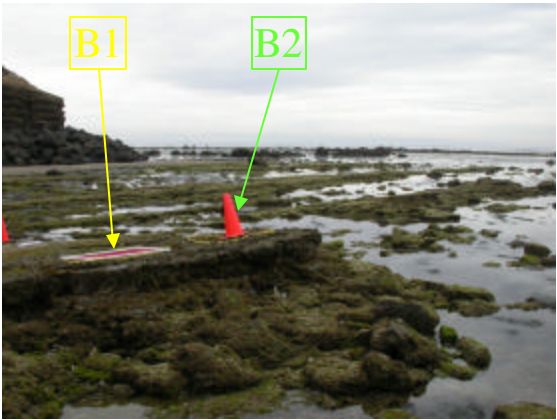


3 B1 SP05

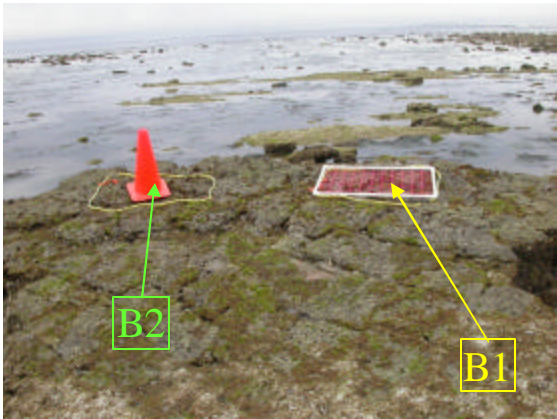
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L1	013	37.10	135
B2	016	1.55	345



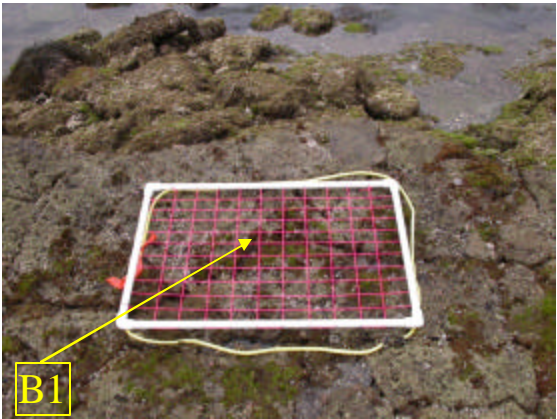
Taken in 2/06 from the cliffs above. Cone on quadrat on plot.



Taken in 2/06. Pink quadrat on plot.



Taken in 2/06. Pink quadrat on plot.



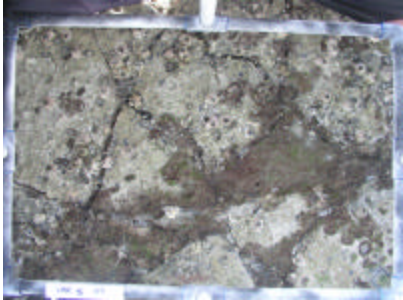
Taken in 2/06. Pink quadrat on plot.

B2 (016)

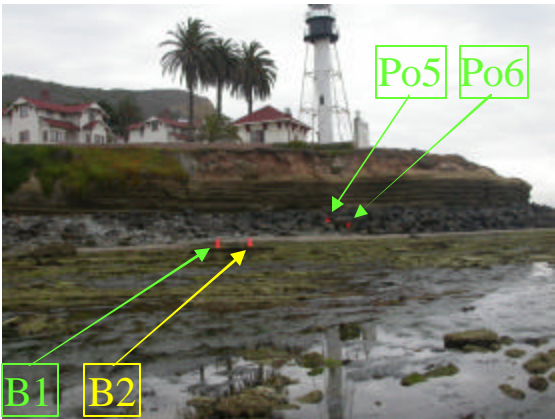
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.665011°N 117.243177°W
Height	30.00 in.

Description: On the same mesa as and south of B1. Mesa is between point with L1 and end of rip rap. Due west of 3 palms by lighthouse.

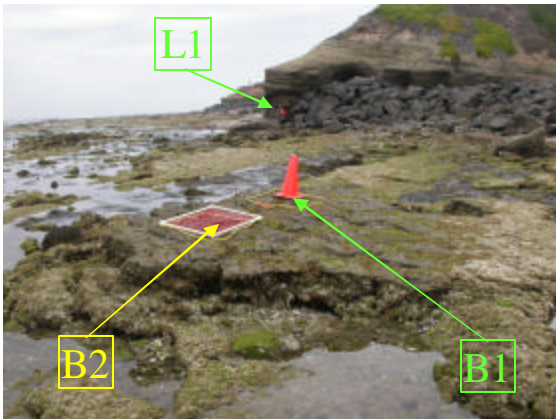
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B1	003	1.55	165
Po5	023N	30.60	250



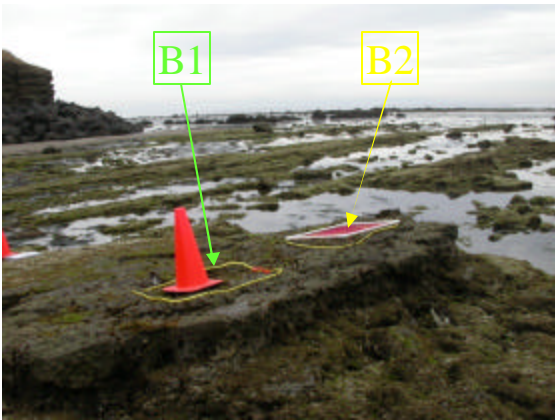
3 B2 SP05



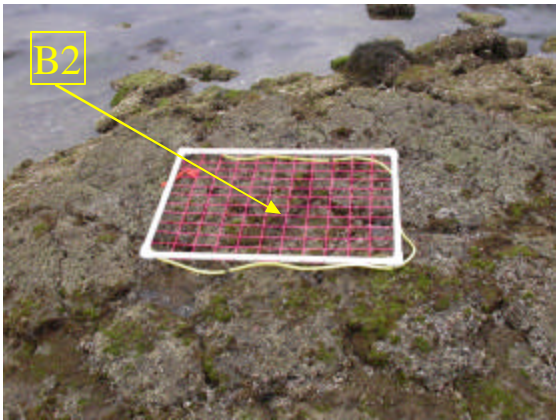
Taken in 2/06. Cone on quadrat on plot.



Taken in 2/06. Pink quadrat on plot.



Taken in 2/06. Pink quadrat on plot.

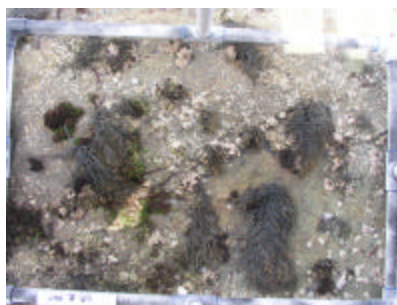


Taken in 2/06. Pink quadrat on plot.

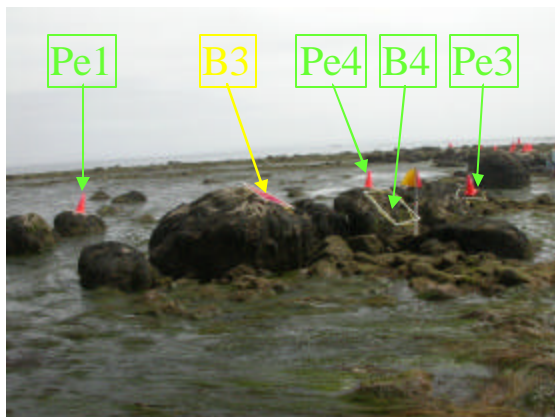
B3 (029)

Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664680°N 117.242701°W
Height	49.01 in.

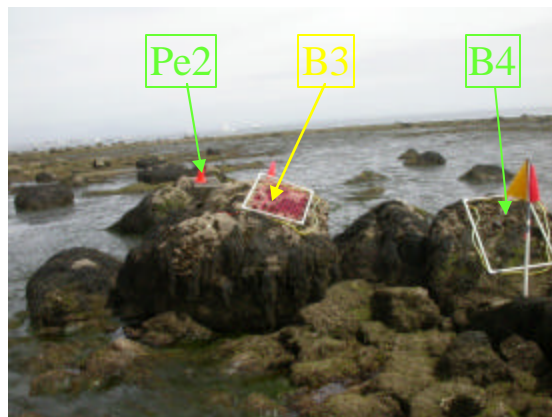
Description: First large boulder at the start of line of boulders coming from the lighthouse. Plot oriented NW to SE facing the ocean.



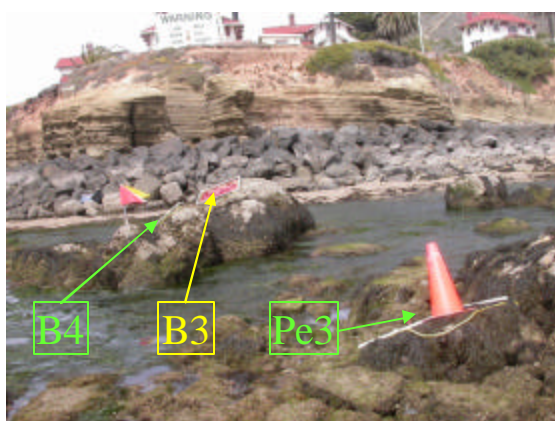
3 B3 SP05



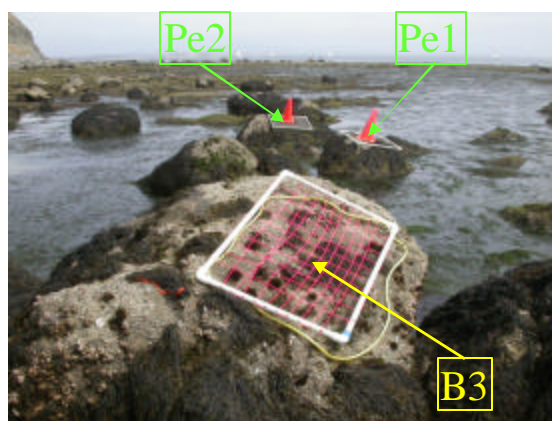
Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.



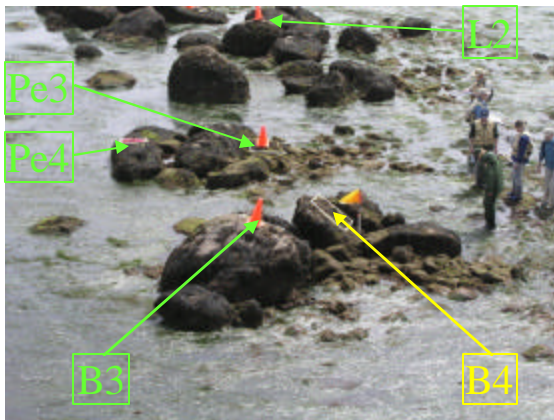
Taken in 3/06. Pink quad on plot.

B4 (030)

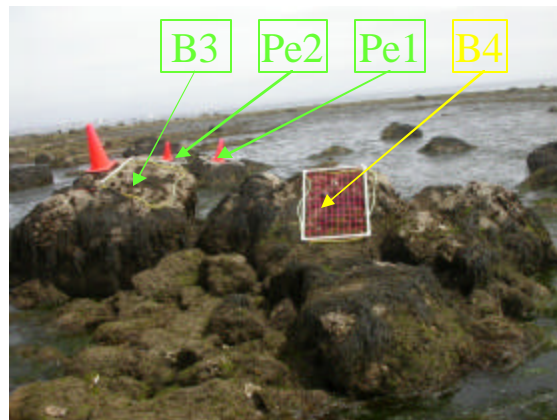
Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664664°N 117.242703°W
Height	40.51 in.

Description: In the first group of boulders coming from the lighthouse. This one is southwest of B3. There is one boulder between B3 and B4. The B4 boulder is slanting towards west. Orientation of this plot got messed up in FA05 and SP06. Use what is in these photos as the definitive orientation. Keep an eye on this plot.

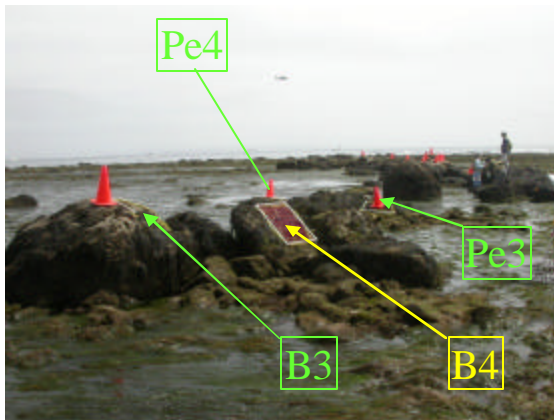
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	026	17.73	340
B3	029	1.95	225
Pe3	028	6.25	70
Pe4	027	6.60	340



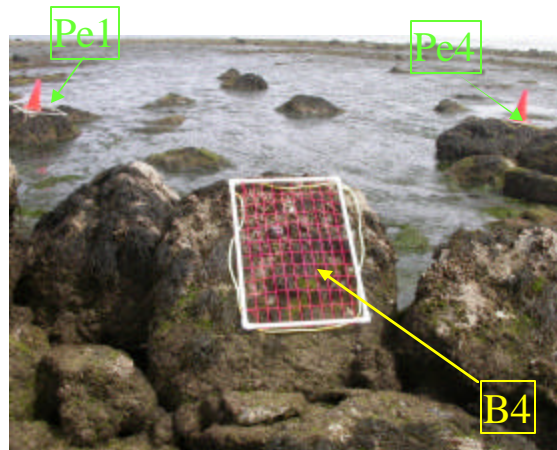
Taken in 3/06 from cliff above. Plot is marked with a quadrat with a flag next to it.



Taken in 3/06. Pink quadrat on plot.



Taken in 3/06. Pink quad on plot. Pe4 is behind the rock.
Last Update: Jun-06

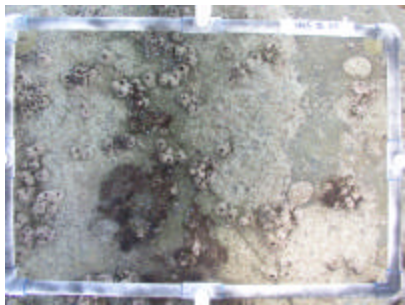


Taken in 3/06. Pink quad on plot.

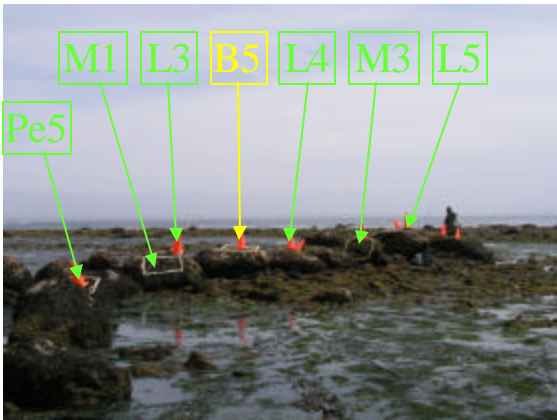
B5 (020)

Target	Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664430°N 117.242613°W
Height	44.26 in.

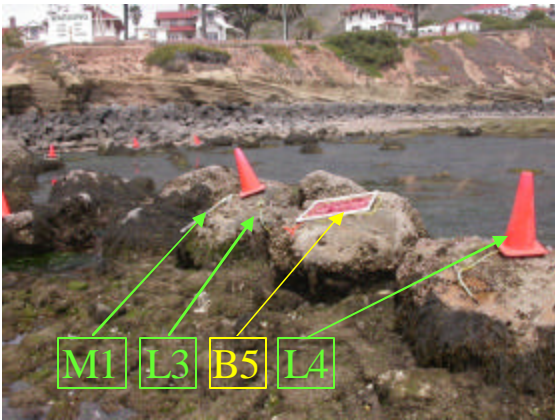
Description: In between L4 and the M1/L3 boulder. Flat topped, squarish boulder that is taller than L4 boulder. The plot is on top.



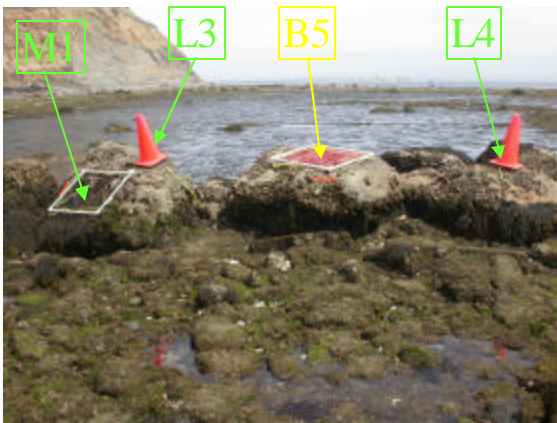
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	021	1.60	180
L4	019	1.82	360



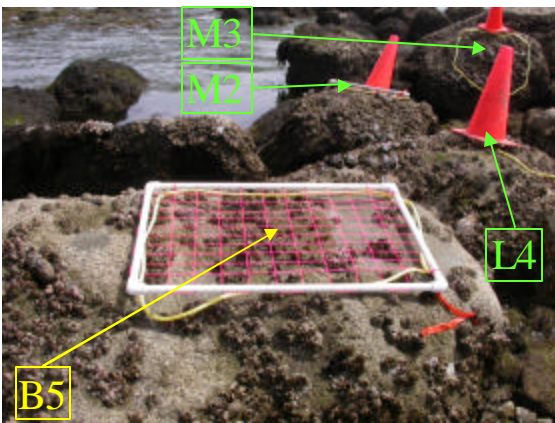
Taken in 3/06.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.

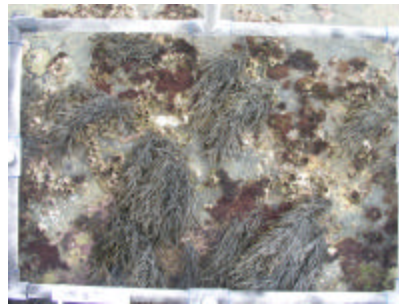


Taken in 3/06. Pink quad on plot.

M1 (024)

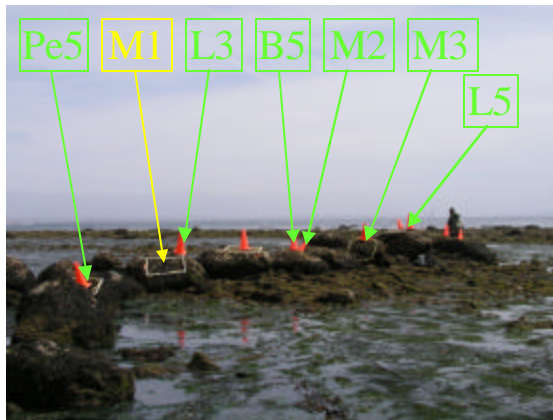
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664445°N 117.242618°W
Height	35.51 in.

Description: Located on the same boulder as L3, but the Lottia and photoplot do not overlap. M1 is on the northwest side of the face of the boulder. Boulder is next to B5, with a slanted flat surface.

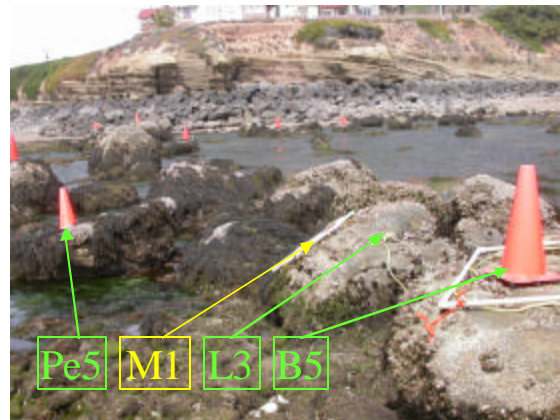


3 M1 SP05

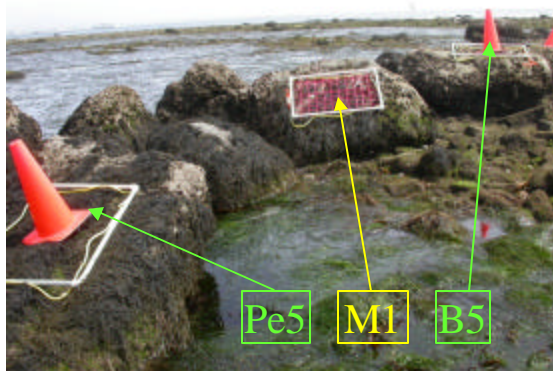
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L3	021	0.74	360
Pe5	025	3.00	180



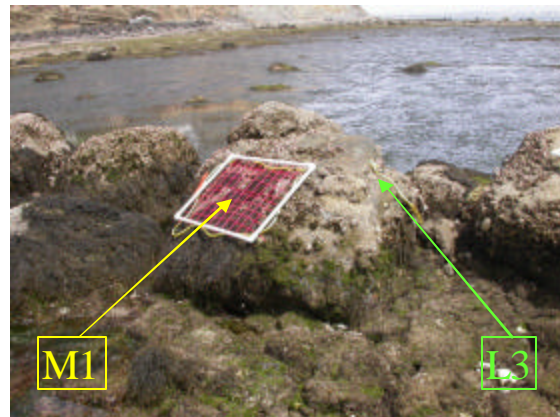
Taken in 3/06. Plain quad on plot, cone marks the limpet bolt next to it.



Taken in 3/06. Quadrat on plot.



Taken in 3/06. Pink quad on plot.

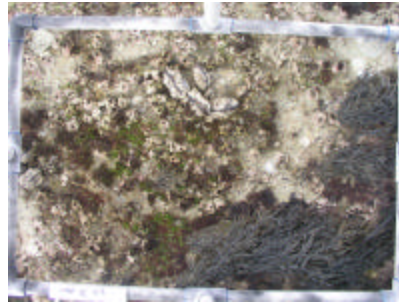


Taken in 3/06. Pink quad on plot.

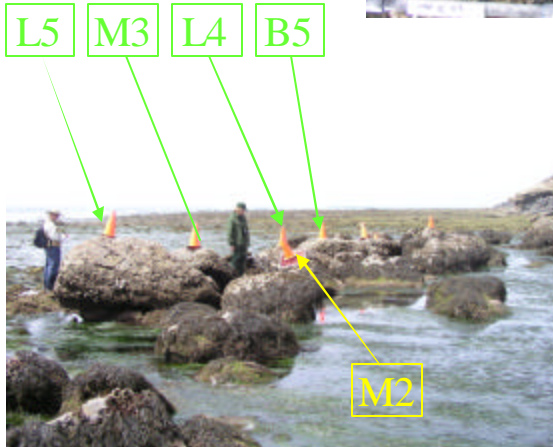
M2 (015)

Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664407°N 117.242596°W
Height	28.98 in.

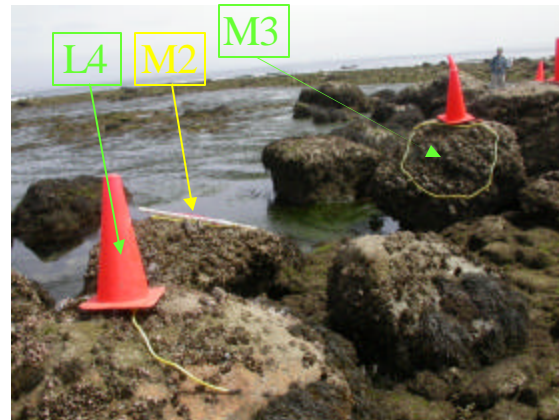
Description: Big long flat boulder sloping to the southeast. It is northeast of M3 and southeast of L4. Plot oriented north/south near the high point of the boulder.



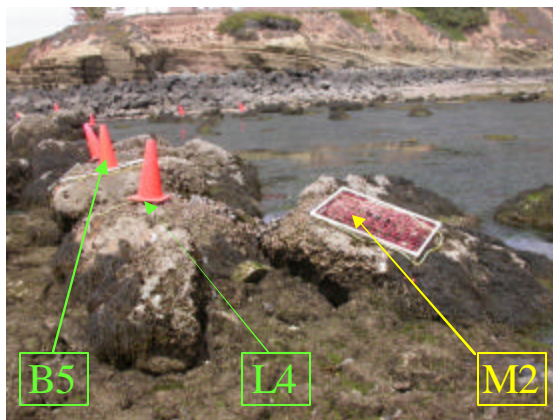
3 M2 SP05



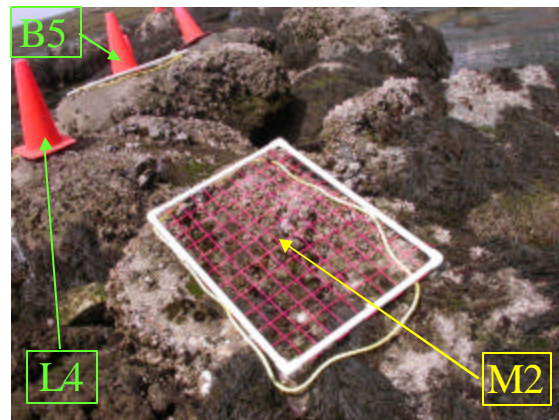
Taken in 3/06. Plain quad on plot, with cone on top. The cone on M3 marks the right boulder, but the plot is on the other side.



Taken in 3/06. Quadrat on plot.



Taken in 3/06. Pink quad on plot.

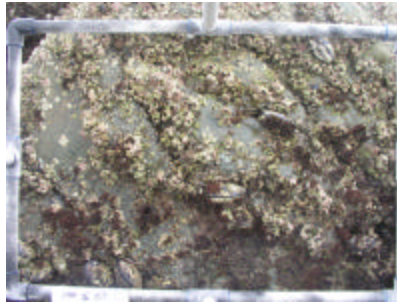


Taken in 3/06. Pink quad on plot.

M3 (014)

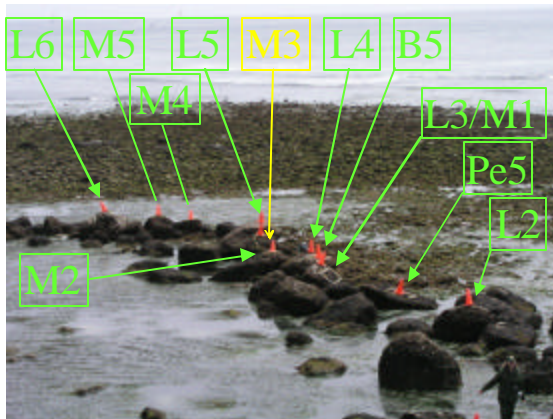
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664389°N 117.242589°W
Height	43.51 in.

Description: Boulder just before L5 as coming from lighthouse.
Plot on northwest side.

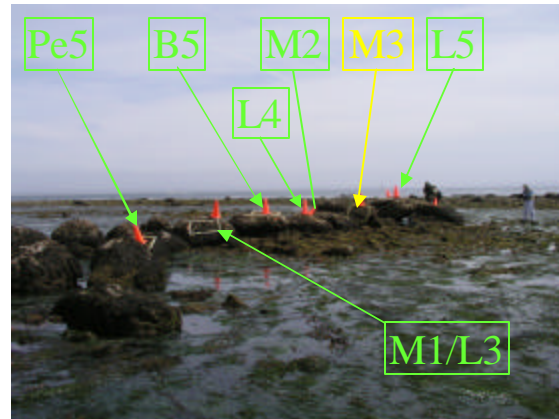


3 M3 SP05

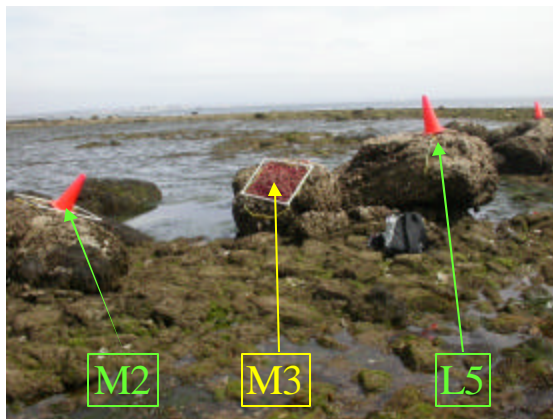
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L5	018	2.10	360
M2	015	2.90	180



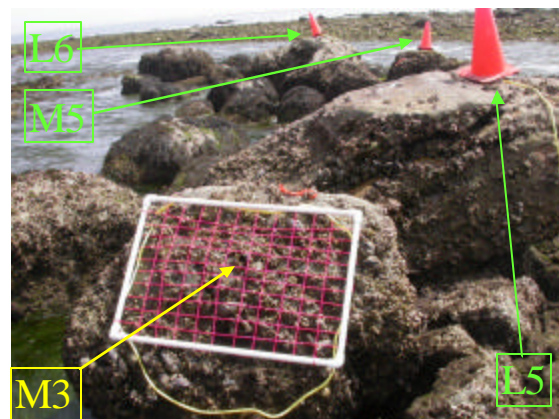
Taken in 3/06 from the cliff above. A cone and a yellow rope on plot.



Taken in 3/06. A cone and a yellow rope on plot. The rope is closer to actual plot location.



Taken in 3/06. Pink quad on plot.

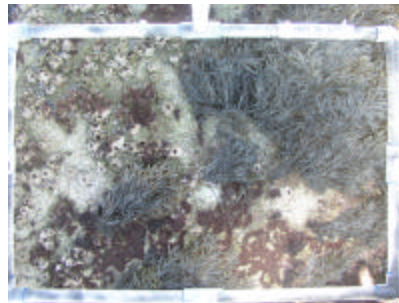


Taken in 3/06. Pink quad on plot.

M4 (017)

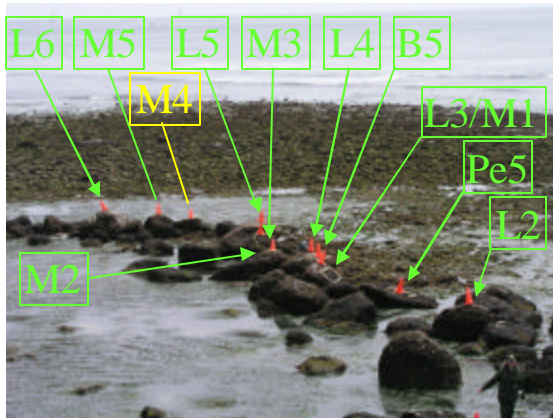
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664328°N 117.242507°W
Height	36.51 in.

Description: Just before M5 (as coming from lighthouse). A slanted flat rock covered in rockweed and barnacles. It is where the row of boulders start to curve east. The plot is oriented north/south.

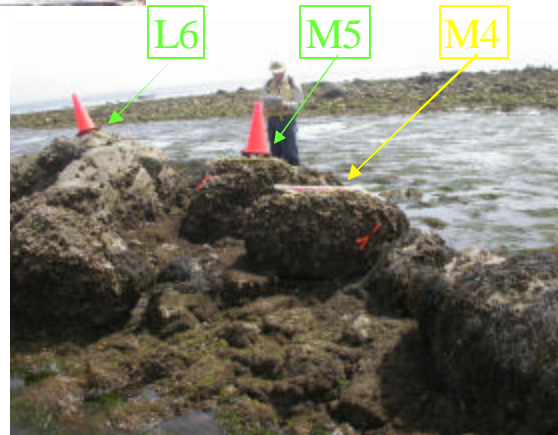


3 M4 FA05

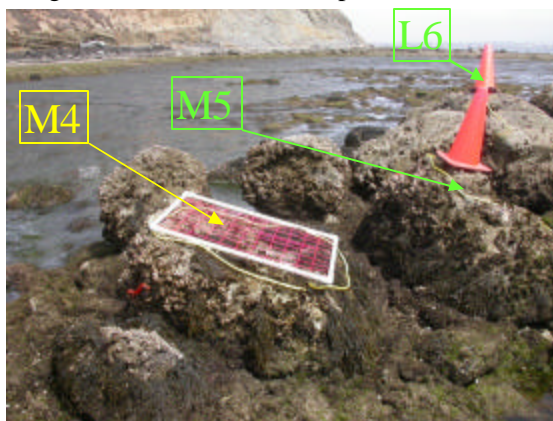
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L5	018	5.80	180
M5	012	1.70	315



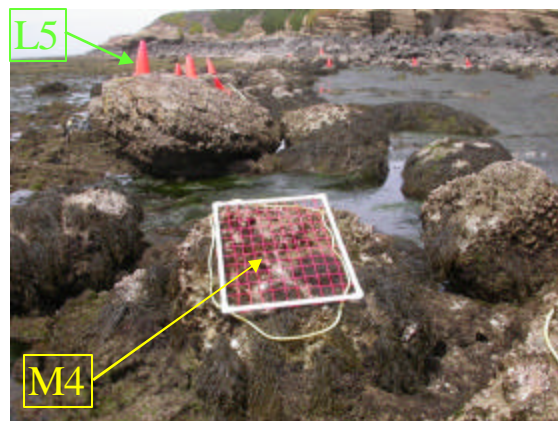
Taken in 3/06 from the cliff above. Cone on right boulder, but can't see plot from here.



Taken in 3/06. Quadrat on plot.



Taken in 3/06. Pink quad on plot.

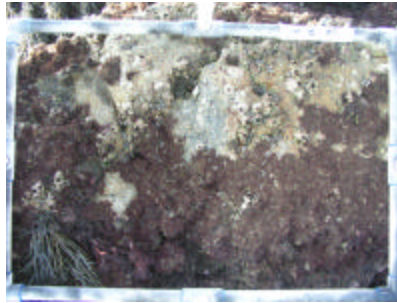


Taken in 3/06. Pink quad on plot.

M5 (012)

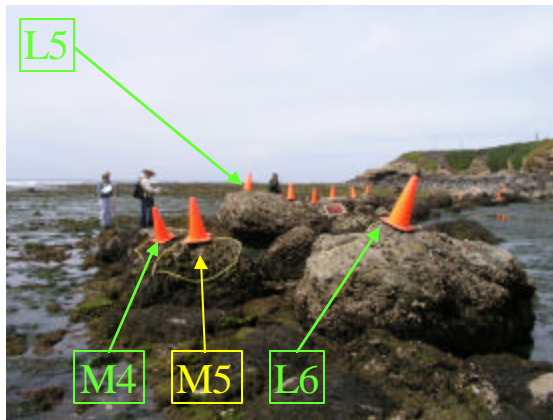
Target	Mussels
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664320°N 117.242489°W
Height	42.01 in.

Description: Boulder approximately 3 feet tall, where the row of boulders begins to turn to the east. Boulder between M4 and L6. The plot is on the southeast side of rock.

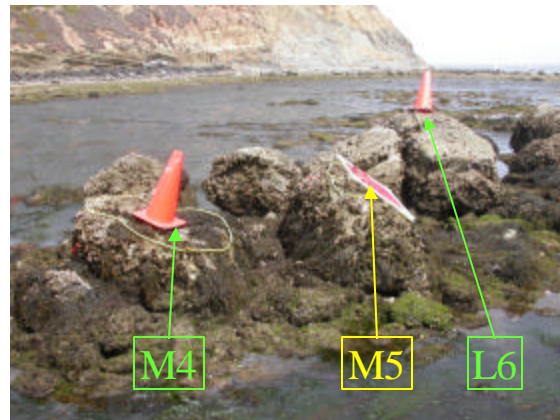


3 M5 FA04

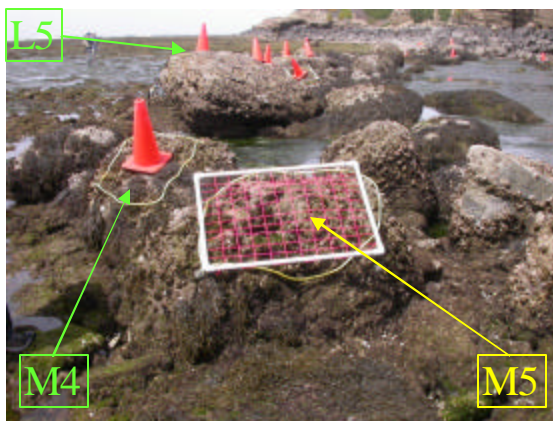
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L6	011	1.70	340
M4	017	1.70	135



Taken in 3/06. Marked with a cone and a yellow rope. Rope marks actual plot.



Taken in 3/06. Pink quadrat on plot.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.

Pe1 (009)

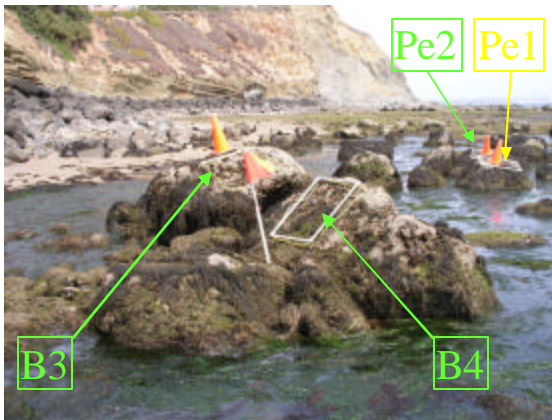
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664664°N 117.242621°W
Height	29.62 in.

Description: Boulder is west of Pe2. It is furthest southwest in the cluster of boulders off of the main row of boulders.

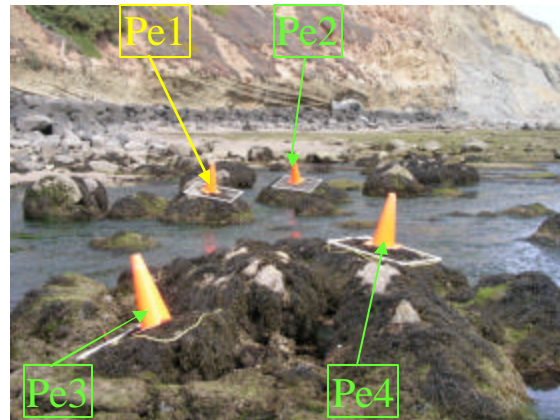


3 Pe1 FA04

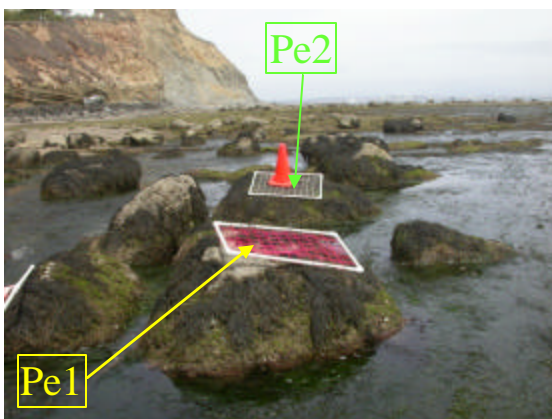
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B3	029	7.35	90
Pe2	010	3.60	270
Pe4	027	7.80	45



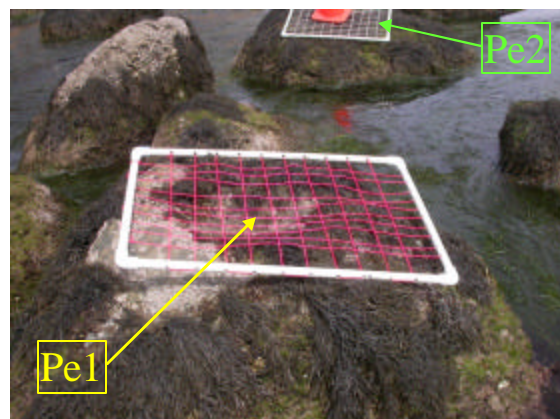
Taken in 3/06. Quad and cone on plot.



Taken in 3/06. Cone and quad on plot.



Taken in 3/06. Pink quad on plot.

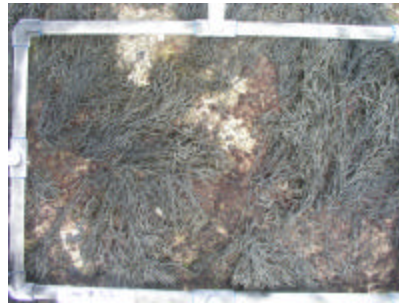


Taken in 3/06. Pink quad on plot.

Pe2 (010)

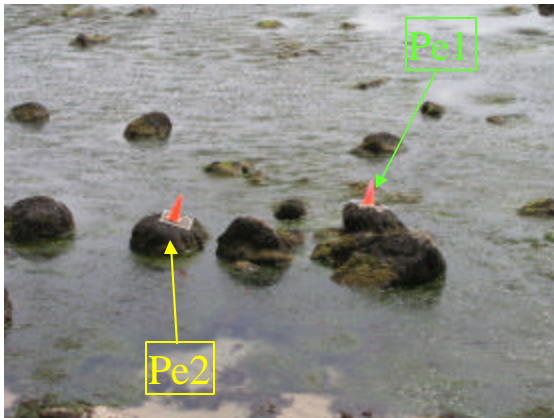
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664683°N 117.242576°W
Height	27.26 in.

Description: In same cluster of boulders as Pe1. East of Pe1.

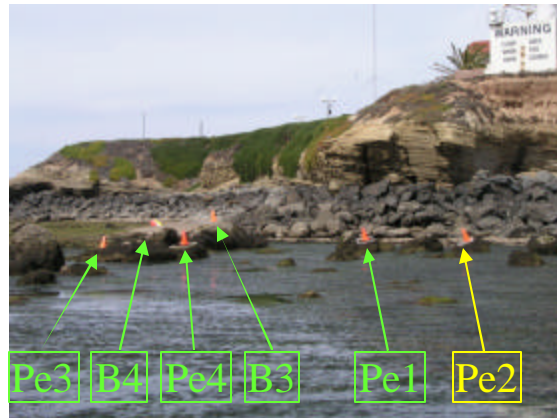


3 Pe2 SP05

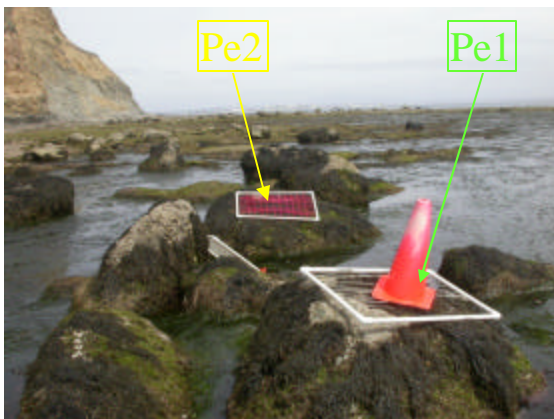
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
Pe1	009	3.60	90



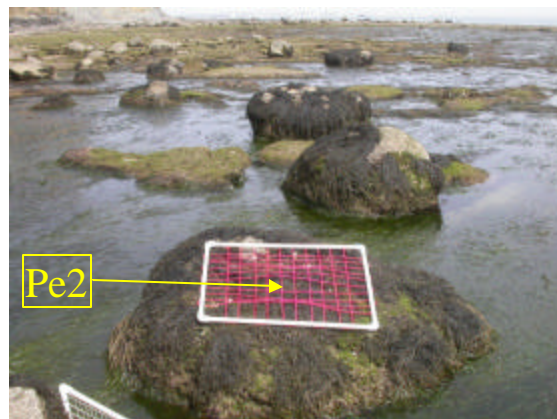
Taken in 3/06 from cliff above. Cone and quad on plot.



Taken in 3/06. Cone and quad on plot.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.

Pe3 (028)

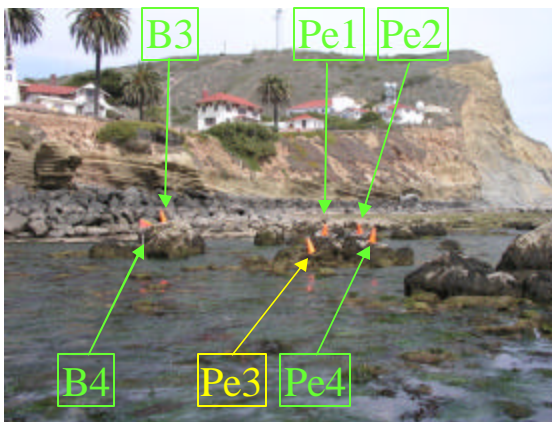
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664625°N 117.242681°W
Height	24.01 in.

Description: West of Pe4. Second cluster of boulders coming from lighthouse. Rock is sloped facing north. Upper right corner of plot hangs slightly off edge of rock. The plot is oriented east/west. There is an odd red hose wedged at the base of the boulder (2006).

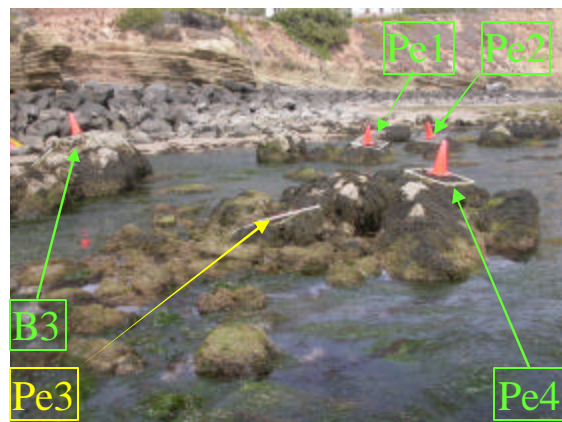


3 Pe3 SP05

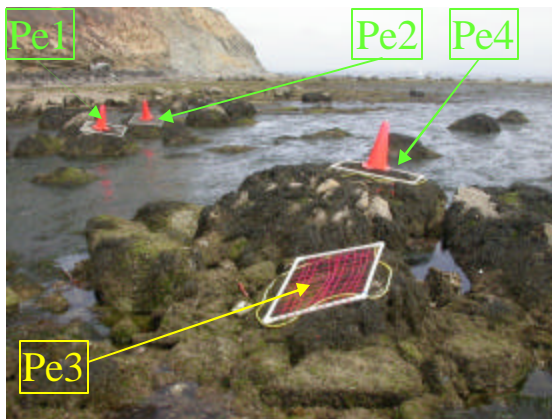
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	026	11.65	360
B4	030	6.25	250
Pe4	027	2.30	245



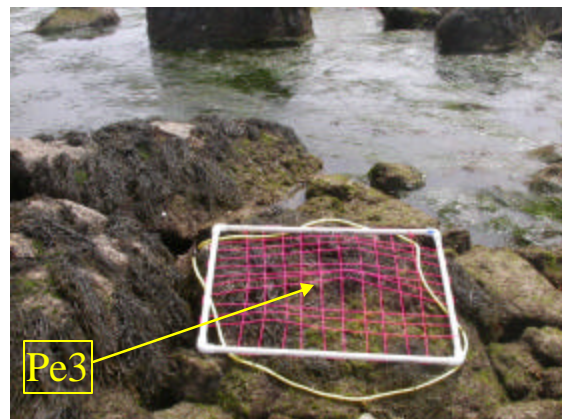
Taken in 3/06. Yellow rope and cone on plot.



Taken in 3/06. Quad on plot.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.

Pe4 (027)

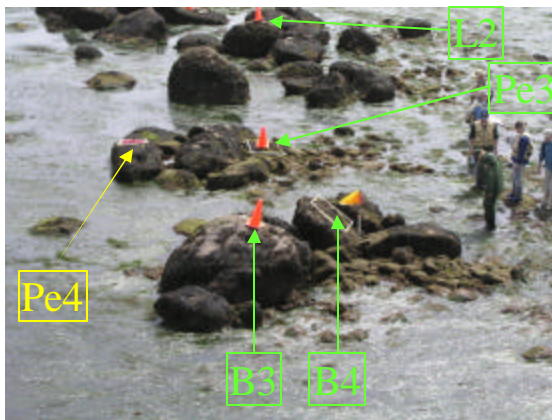
Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664624°N 117.242656°W
Height	30.51 in.

Description: Second cluster of boulders as heading from lighthouse. Boulder flat and long in north south axis. Plot on southern part of the top of the boulder.

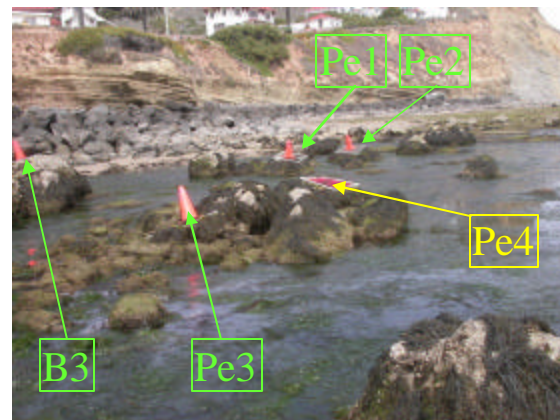


3 Pe4 FA04

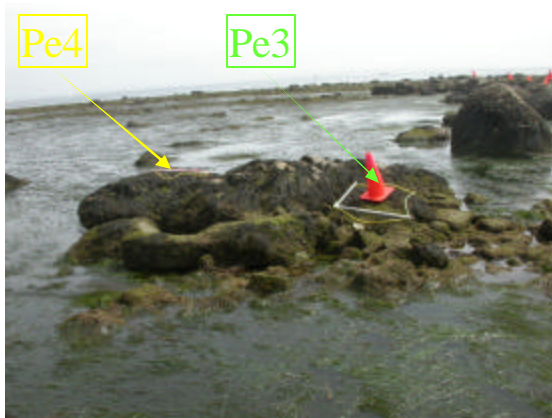
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
L2	026	12.20	350
B3	029	8.10	180
B4	030	6.60	160
Pe1	009	7.80	225
Pe3	028	2.30	65
Pe5	025	16.40	345



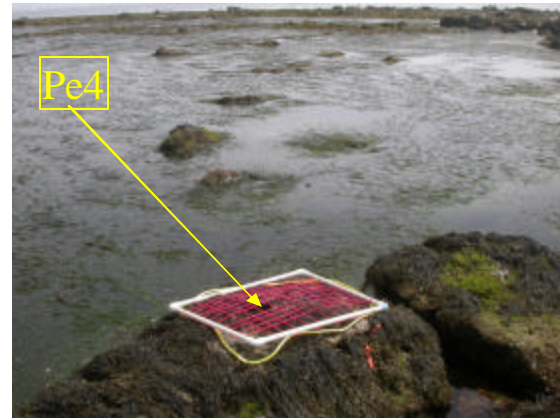
Taken in 3/06 from the cliff above. Pink quad on plot.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.

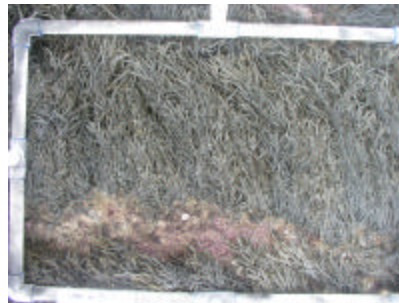


Taken in 3/06. Pink quad on plot.

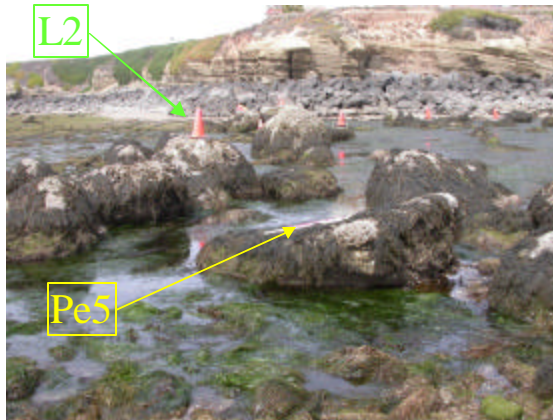
Pe5 (025)

Target	Rockweed
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.664466°N 117.242651°W
Height	25.26 in.

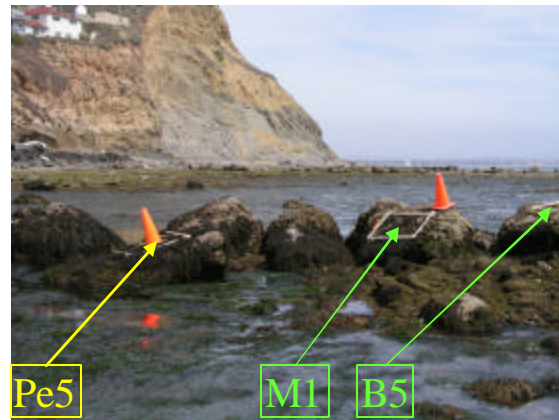
Description: Long slanting boulder, facing the north west. There is one boulder between M1 and Pe5. There is an extra round bolt on this boulder—ignore it and use the blobs of putty.



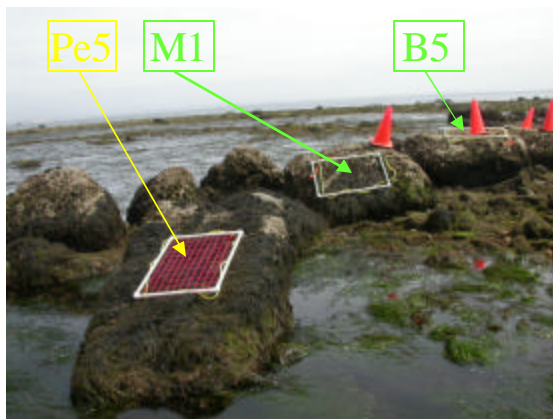
3 Pe5 SP05



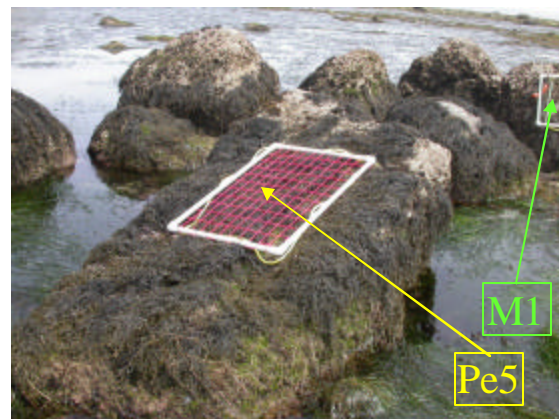
Taken in 3/06. Pink quad on plot.



Taken in 3/06. Quad and cone on plot.



Taken in 3/06. Pink quad on plot.



Taken in 3/06. Pink quad on plot.

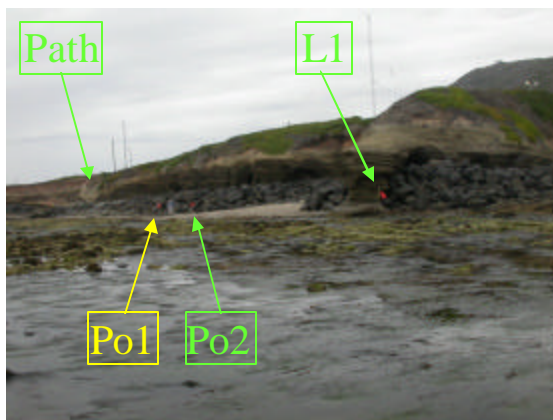
Po1 (269N)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.665606°N 117.243656°W
Height	64.00 in.

Description: On the riprap along the cliffs to the south of the entrance path. LR putty is mismarked as “LL”. No bolts showing, only blobs of putty. Medium sized boulder in the middle of 3 larger boulders. Approximately 10m north of Po2.



3 Po1 SP05



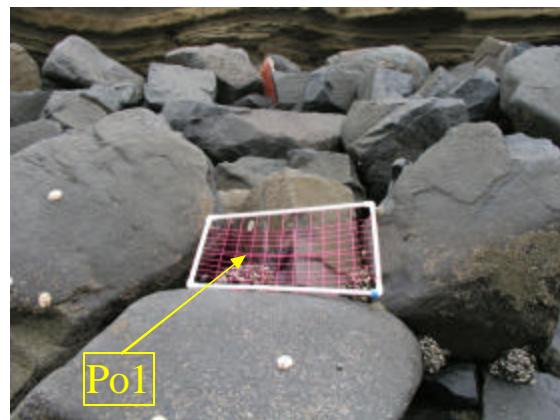
Taken in 2/06. Cone on plot.



Taken in 2/06. Pink quad on plot.



Taken in 2/06. Pink quad on plot.



Taken in 2/06. Pink quad on plot.

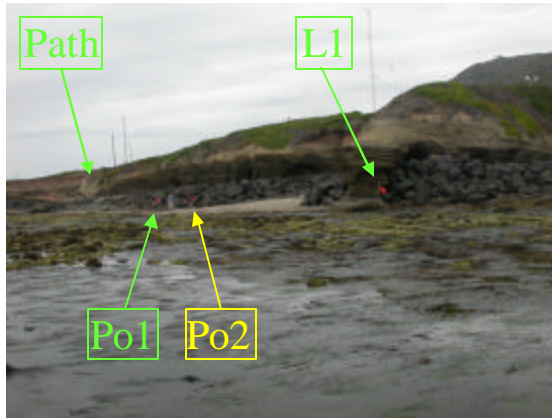
Po2 (269C)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.665560°N 117.243615°W
Height	91.75 in.

Description: LR blob is missing. In rip rap, about 10m south of Po1. A small cave in the sandstone cliff to the back and right of Po2.



3 Po2 SP05



Taken in 2/06. Cone on plot.



Taken in 2/06. Cone on plot.



Taken in 2/06. Pink quad on plot.



Taken in 2/06. Pink quad on plot.

Po3 (196)

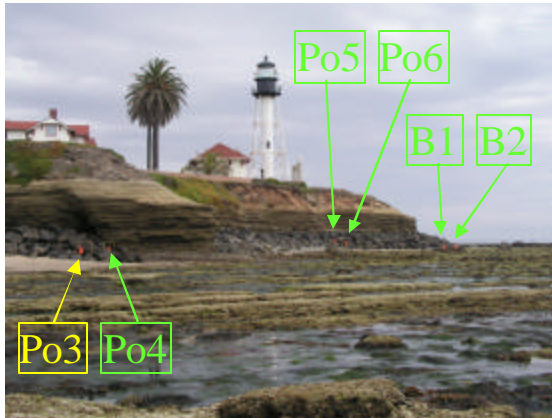
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.665383°N 117.243462°W
Height	69.75 in.

Description: On a large rip rap boulder north of the big deep pool. Po4 is behind the rock and to the right. All are putty blobs, LL missing.

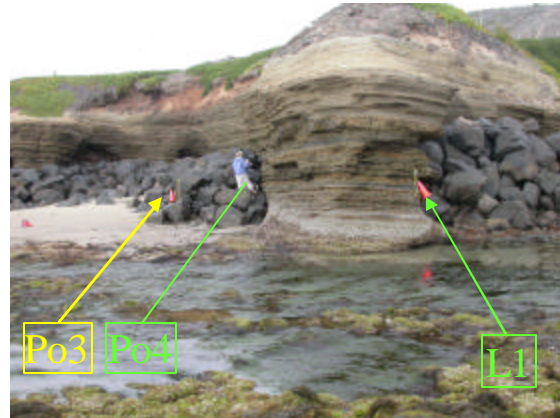


3 Po3 SP05

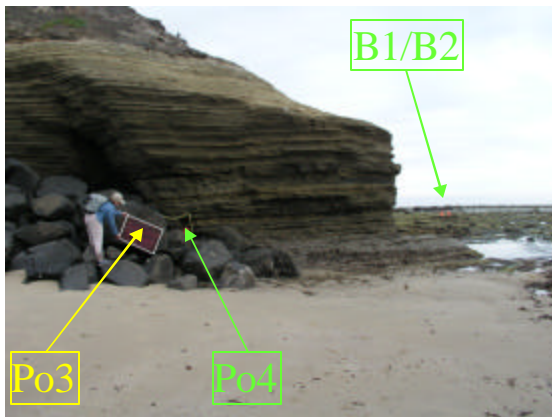
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
Po2	269S	23.80	125
Po4	196S	3.82	305



Taken in 2/06. Cone and yellow rope on plot.



Taken in 2/06. Cone and yellow rope on plot.
Rope is approximation to actual location.



Taken in 2/06. Pink quad on plot



Taken in 2/06. Pink quad on plot.

Po4 (196S)

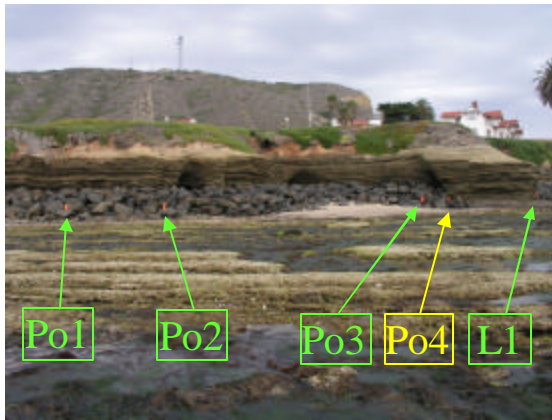
Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.665349°N 117.243461°W
Height	85.25 in.

Description: To the south and behind Po3. Spans across a rip rap boulder and the cliff. UR, LR are bolts on the boulder.

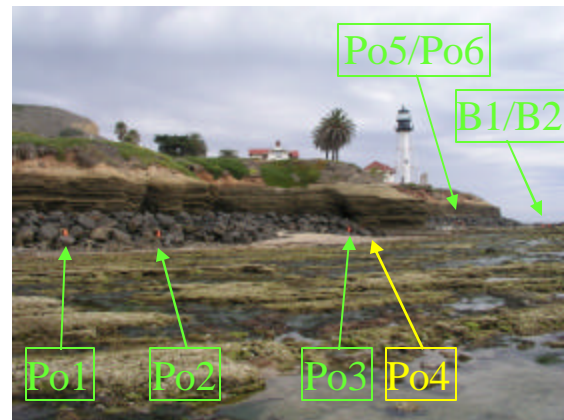


3 Po4 FA04

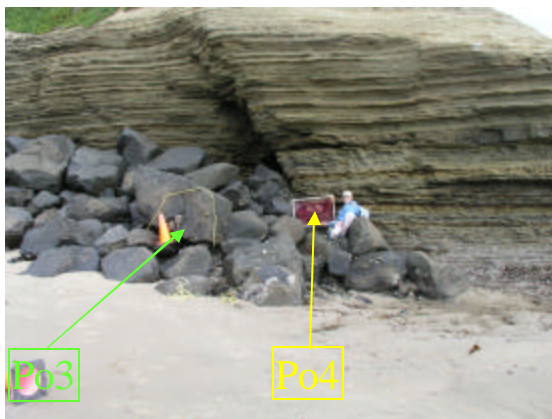
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
Po3	196	3.82	125
Po5	023N	68.62	290



Taken in 2/06. Cone and rope on plot.



Taken in 2/06. Cone and rope on plot.



Taken in 2/06. Pink quad on plot.



Taken in 2/06. Pink quad on plot.

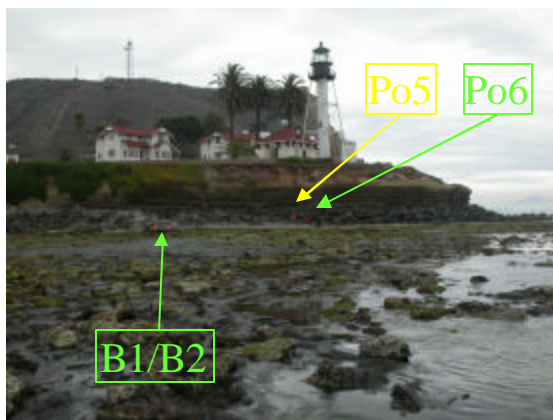
Po5 (023N)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.665038°N 117.242851°W
Height	59.75 in.

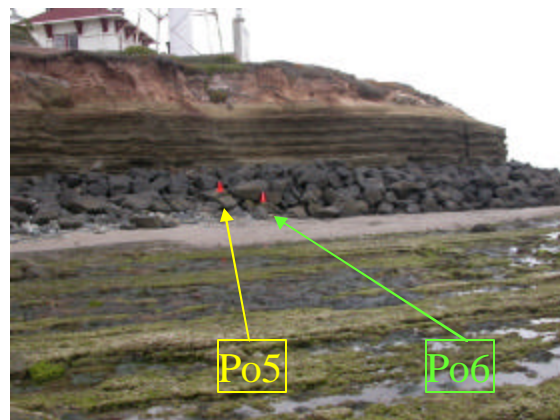
Description: On rip rap just below Coast Guard Lighthouse, almost to the end of the rip rap. Due north of and higher than Po6. There is an extra blob by the UL. Use BOLT not extra blob for UL. Rest of corners are blobs.



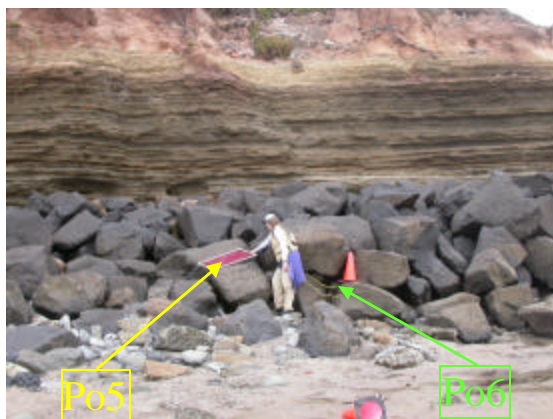
3 Po5 SP05



Taken in 2/06. Cone and yellow rope on plot.



Taken in 2/06. Cone and yellow rope on plot.



Taken in 2/06. Pink quad on plot.



Taken in 2/06. Pink quad on plot.

Po6 (023S)

Target	Goose Barnacles
Type	Photoplot
Bolts	4, Rectangle
Coordinates	32.665024°N 117.242858°W
Height	55.00 in.

Description: On rip rap just below Coast Guard Lighthouse, almost to the end of the rip rap. Due south of and lower than Po5. Only one bolt (UL) and one blob (UR).

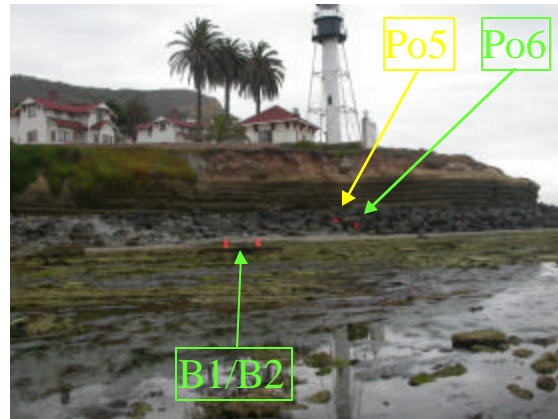
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
B3	029	33.75	360
Po5	023N	1.72	170



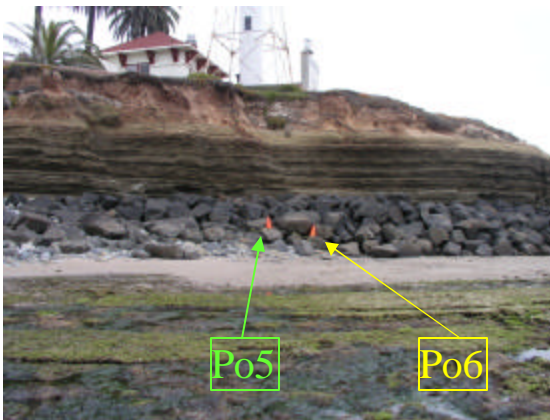
3 Po6 FA04



Taken in 2/06, taken from cliff above. Cone on plot.



Taken in 2/06. Cone on plot.



Taken in 2/06. Cone on plot.



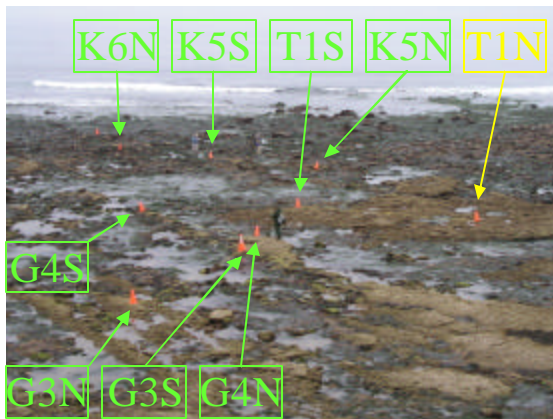
Taken in 2/06. Pink quad on plot.

T1N (001N)

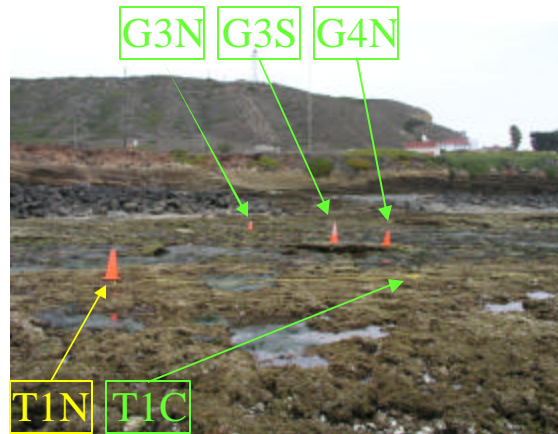
Target	Red Algal Turf
Type	Transect
Bolts	1 of 3, line
Coordinates	32.665846°N 117.244598°W
Height	40.00 in.

Description: The transect between center and north goes through a pool with surfgrass. A medium length stainless bolt on a high point just beyond a very small pool.

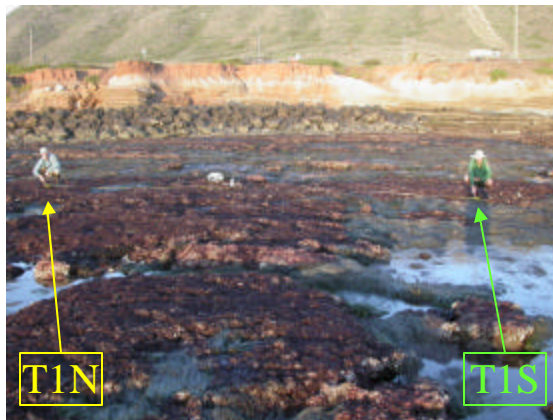
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1C	001C	4.93	335
T1S	001S	10.06	320
G3N	007N	20.45	255
G4N	005N	10.51	270
G4S	005S	16.92	320
K5N	002N	22.60	360



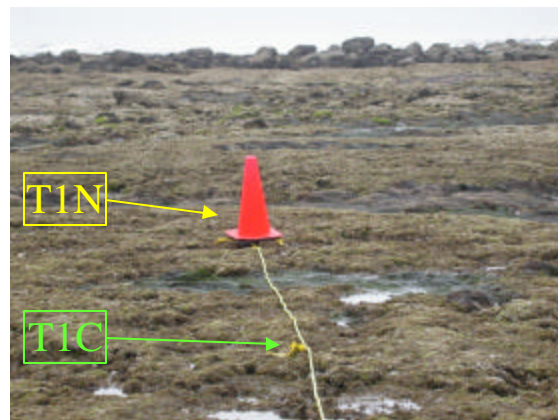
Taken in 2/06 from cliff above. Cone on bolt.



Taken in 2/06. Cone on bolt.



Taken in FA04. Volunteers pointing to bolts.



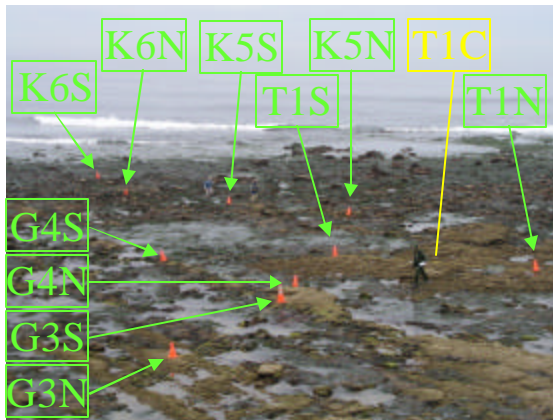
Taken in 2/06. Cone on bolt.

T1C (001C)

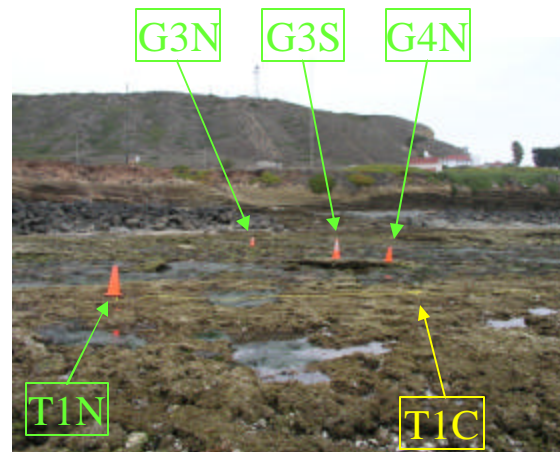
Target	Red Algal Turf
Type	Transect
Bolts	2 of 3, line
Coordinates	32.665808°N 117.244576°W
Height	37.50

Description: Center bolt along the transect line, in the center of the mesa. Stainless steel medium bolt.

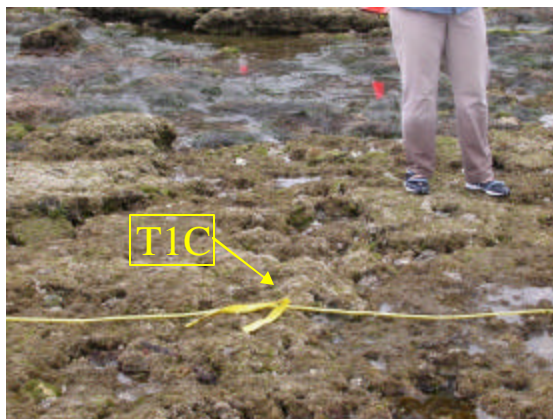
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1N	001N	4.93	155
G3N	007N	20.21	235
G4N	005N	8.22	255
G4S	005S	12.25	310



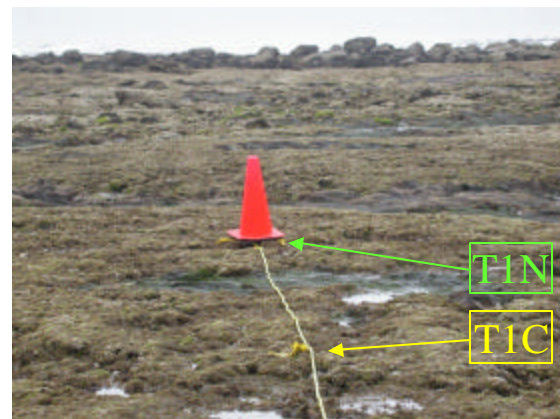
Taken in 2/06, taken from cliffs above. Bolt is not visible from here, location is estimate.



Taken in 2/06. Yellow tape on bolt.



Taken in 2/06. Tape on bolt.



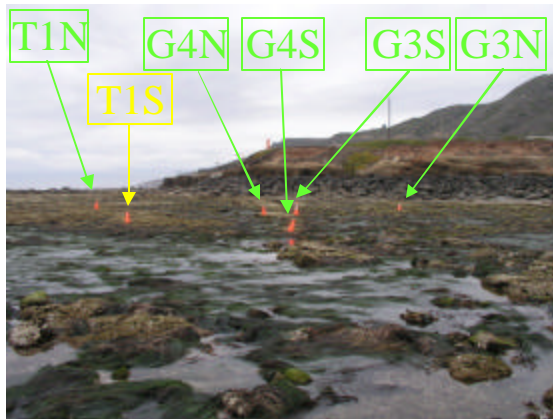
Taken in 2/06. Tape on bolt.

T1S (001S)

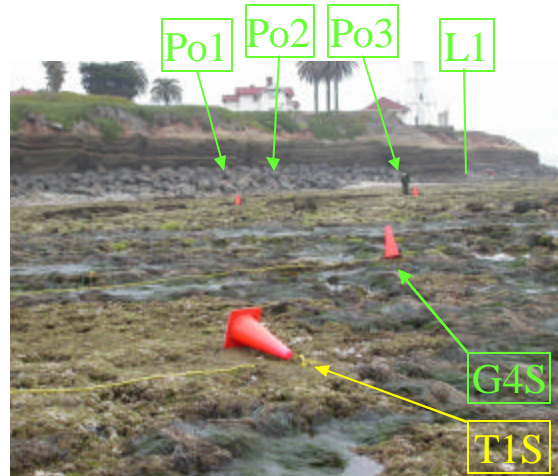
Target	Red Algal Turf
Type	Transect
Bolts	3 of 3, line
Coordinates	32.665765°N 117.244550°W
Height	29.25 in.

Description: Whole transect is higher than the rest of them. On the edge of a very large mesa. Bolt is medium length and stainless steel.

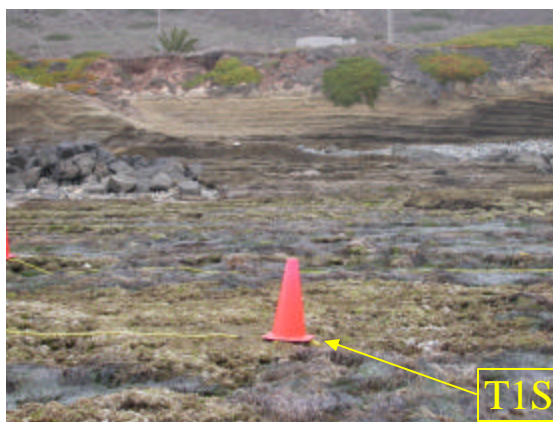
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1N	001N	10.06	140
G3N	007N	21.45	220
G4N	005N	8.85	220
G4S	005S	7.88	300
K5N	002N	15.90	20



Taken in 2/06. Cone on bolt.



Taken in 2/06. Yellow tape on bolt.



Taken in 2/06. Cone on bolt.



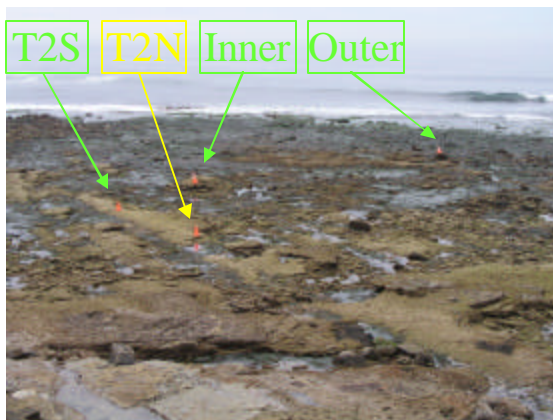
Taken in 2/06. Yellow tape on bolt.

T2N (008N)

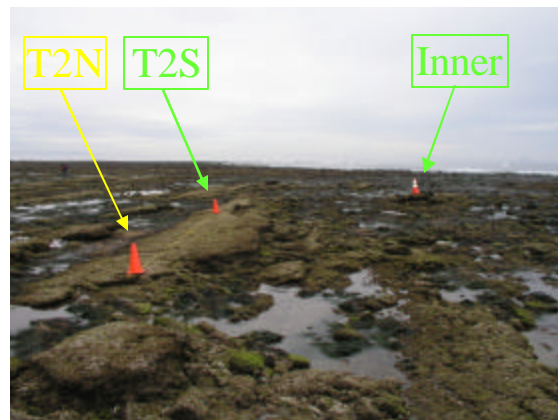
Target	Red Algal Turf
Type	Transect
Bolts	1 of 3, line
Coordinates	32.665691°N 117.244137°W
Height	31.75 in.

Description: Southwest of the entrance path. At the end of a mesa, along a “step”. A long stainless bolt. The transect runs along a mesa, fairly high up.

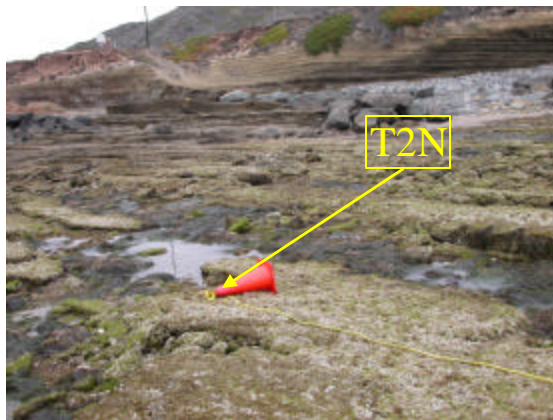
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2C	008C	4.95	345
T2S	008S	9.97	345
G3N	007N	33.65	130
G4N	005N	36.45	160
Inmk	Inmk	19.05	20



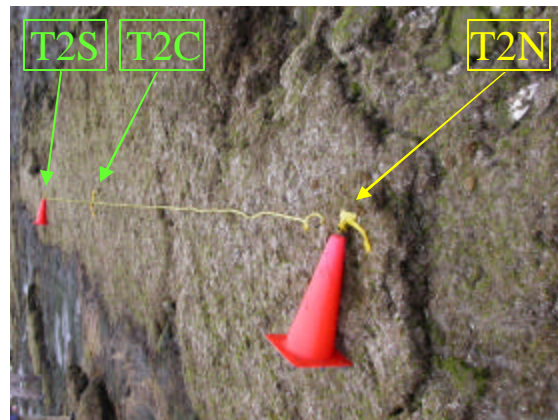
Taken in 2/06, from cliffs above.



Taken in 2/06. Cone on bolt.



Taken in 2/06. Yellow tape on bolt.



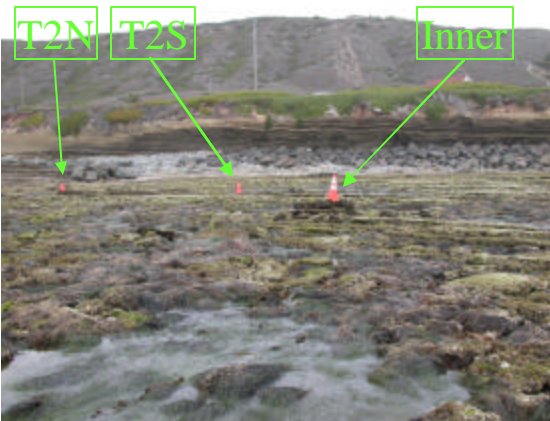
Taken in 2/06, taken at 90° angle. Yellow tape on bolt.

T2C (008C)

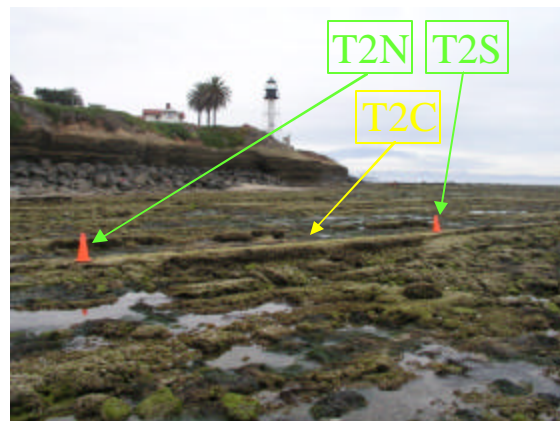
Target	Red Algal Turf
Type	Transect
Bolts	2 of 3, line
Coordinates	32.665645°N 117.244123°W
Height	31.50 in.

Description: Center bolt along the line, in the middle of the mesa.
The medium stainless bolt.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2N	008N	4.95	165
Inmk	Inmk	14.74	20



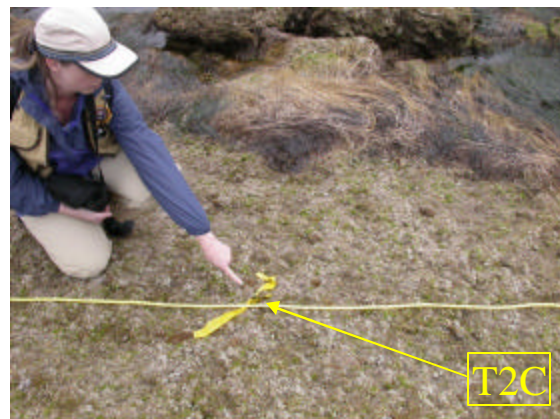
Taken in 2/06. Bolt not marked in this photo.



Taken in 2/06. Yellow tape around bolt.



Taken in 2/06. Debi pointing at bolt.



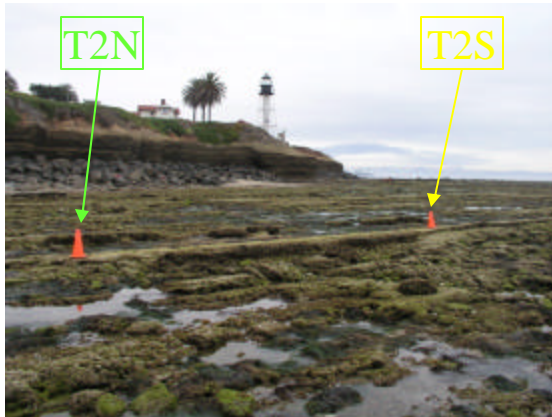
Taken in 2/06. Yellow tape around bolt.

T2S (008S)

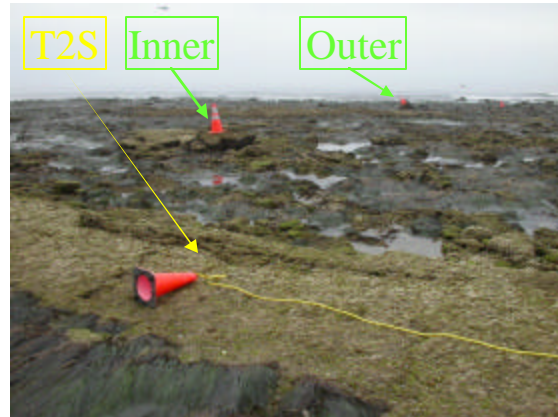
Target	Red Algal Turf
Type	Transect
Bolts	3 of 3, line
Coordinates	32.665601°N 117.244109°W
Height	29.50 in.

Description: A medium stainless bolt in the middle of a mesa.
Mesa is much longer than the transect.

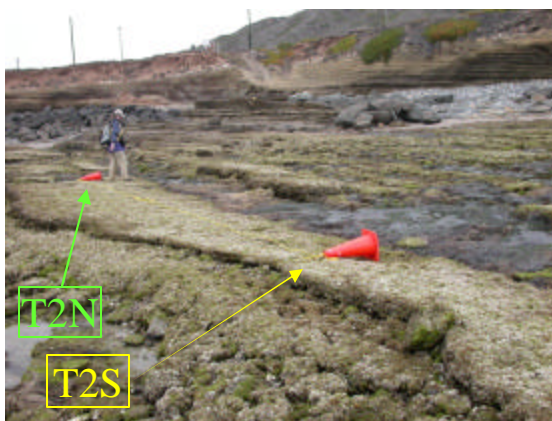
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T2N	008N	9.97	165
Inmk	Inmk	10.95	45



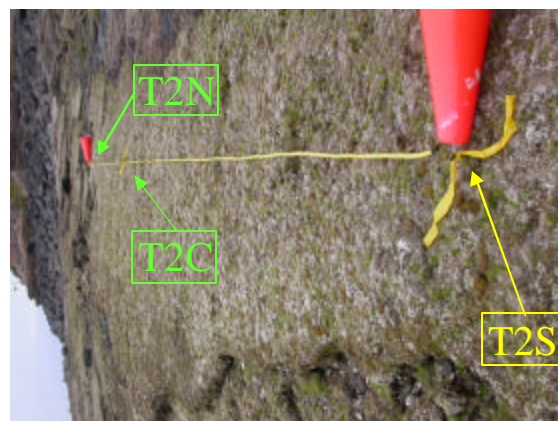
Taken in 2/06. Cone on bolt.



Taken in 2/06. Yellow tape on bolt.



Taken in 2/06. Yellow tape on bolt.



Taken in 2/06, photo taken at 90°. Yellow tape on bolt.

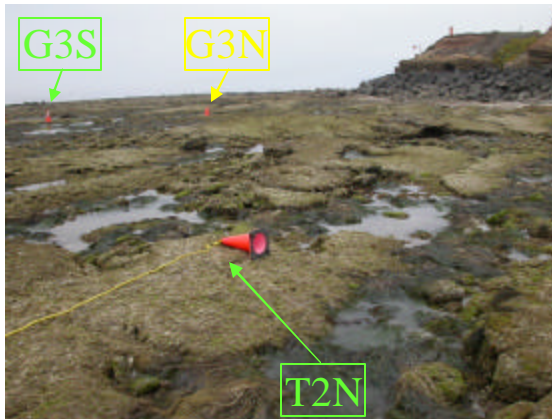
G3N (007N)

Target	Surfgrass
Type	Transect
Bolts	1 of 3, line
Coordinates	32.665896°N 117.244391°W
Height	30.25 in.

Description: On the second ledge of a mesa as walking from south to north along the transect. A long stainless bolt, much above the rest of the transect.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1N	001N	20.45	75
T1C	001C	20.21	55
T1S	001S	21.45	40
T2N	008N	33.65	310

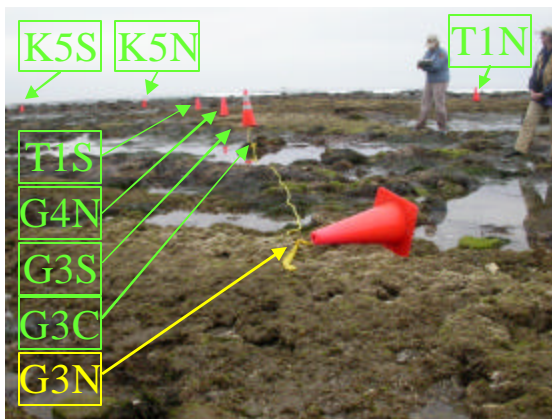
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3C	007C	5.00	45
G3S	007S	9.87	45
G4N	005N	12.64	45
G4S	005S	20.22	20



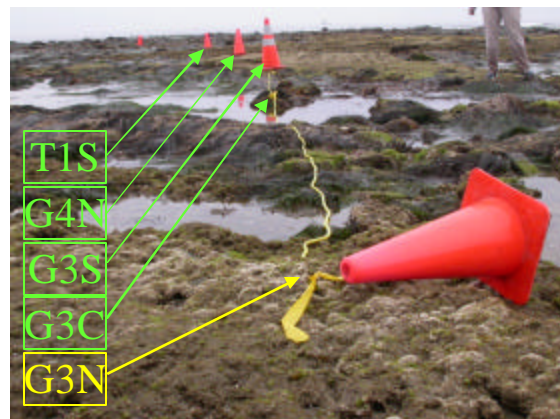
Taken in 2/06. Cone on bolt.



Taken in 2/06, photo at 90°. Yellow tape on bolt.



Taken in 2/06. Yellow tape on bolt.



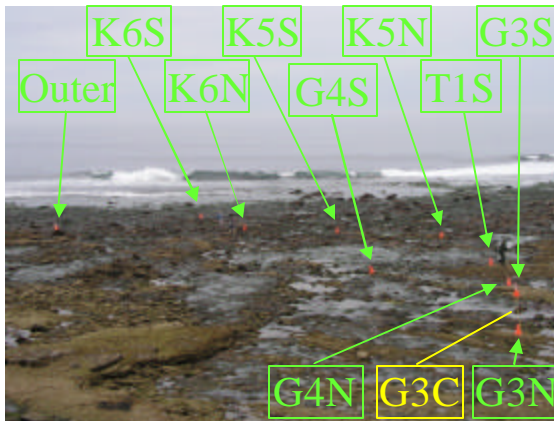
Taken in 2/06. Yellow tape on bolt.

G3C (007C)

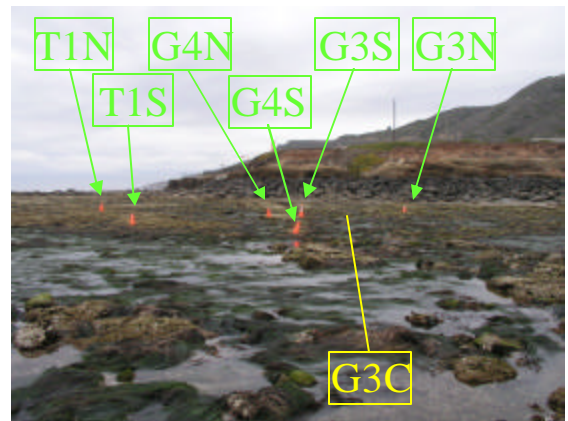
Target	Surfgrass
Type	Transect
Bolts	2 of 3, line
Coordinates	32.665869°N 117.244432°W
Height	27.00

Description: NEEDS TO BE RELOCATED. On a totally movable rock, which was moved back in line for now. The transect runs through a low pool, with north and south bolts on mesas, and a few peaks towards the center.

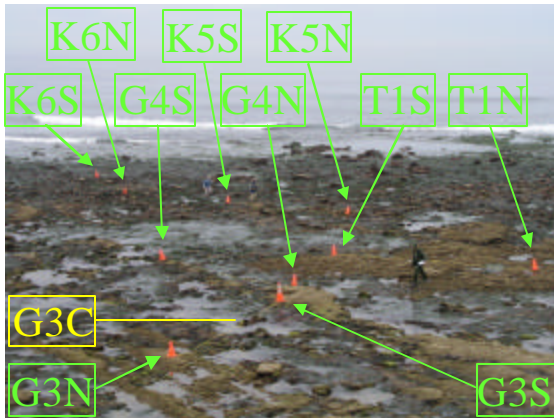
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	007N	5.00	225



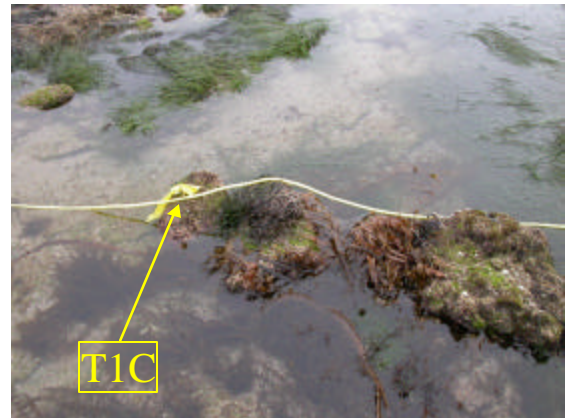
Taken in 2/06, taken from cliff above. Bolt marked with yellow tape, not entirely clear.



Taken in 2/06. Bolt marked with yellow tape, but not entirely clear on this photo.



Taken in 2/06, taken from cliff above. Bolt marked with yellow tape, not entirely clear.



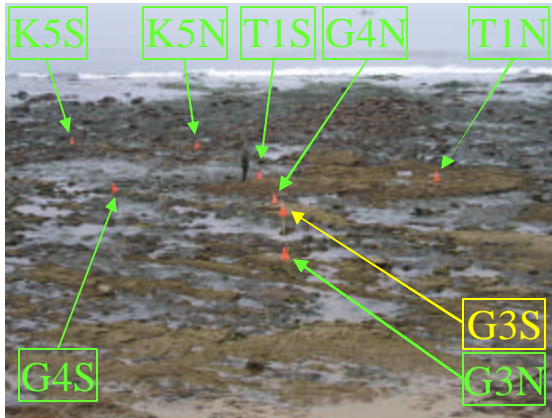
Taken in 2/06. Yellow tape on movable rock. This is where it was at this time.

G3S (007S)

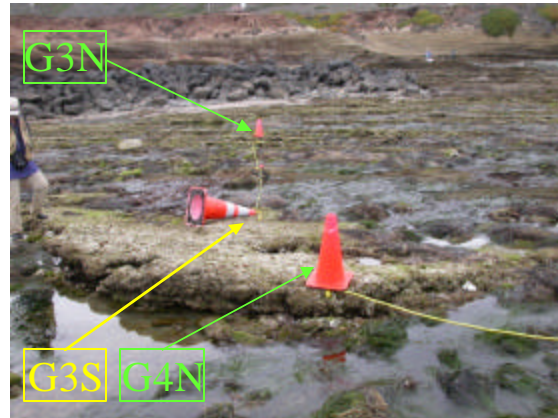
Target	Surfgrass
Type	Transect
Bolts	3 of 3, line
Coordinates	32.665843°N 117.244473°W
Height	29.00 in.

Description: Transect runs through a pool between two mesas. South is a medium stainless bolt on a mesa that is higher than the rest of the transect.

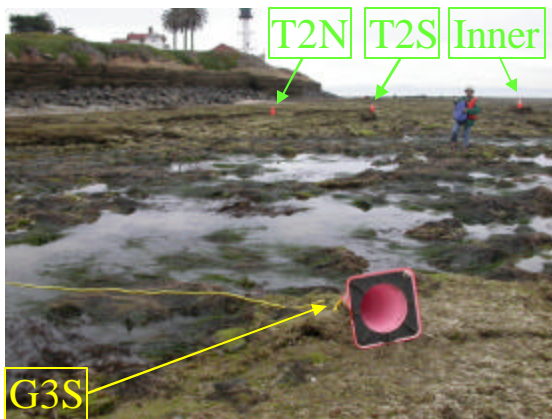
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	007N	9.87	225
G4N	005N	2.79	40
G4S	005S	12.03	5



Taken in 2/06, taken from cliff above. Cone on bolt.



Taken in 2/06. Yellow tape on bolt.



Taken in 2/06. Yellow tape on bolt.



Taken in 2/06. Cone on bolt.

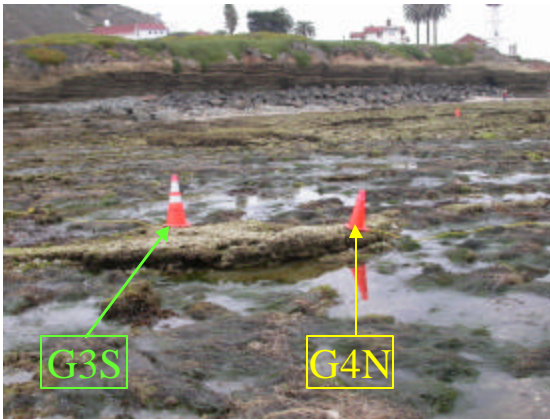
G4N (005N)

Target	Surfgrass
Type	Transect
Bolts	1 of 3, line
Coordinates	32.665821°N 117.244485°W
Height	32.25 in.

Description: Transect runs through a lower pool. G4N not the same bolt as G3S, but close to it (same mesa). On steep edge of a mesa, higher than the rest of the transect. A medium stainless bolt.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1N	001N	10.51	90
T1C	001C	8.22	75
T1S	001S	8.85	40
T2N	008N	36.45	340

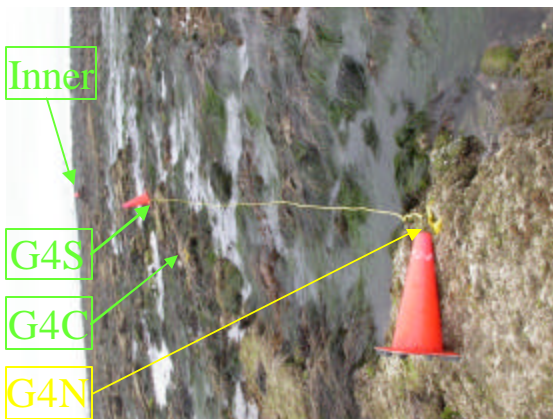
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G3N	007N	12.64	225
G3S	007S	2.79	220
G4C	005C	5.03	340
G4S	005S	10.07	340



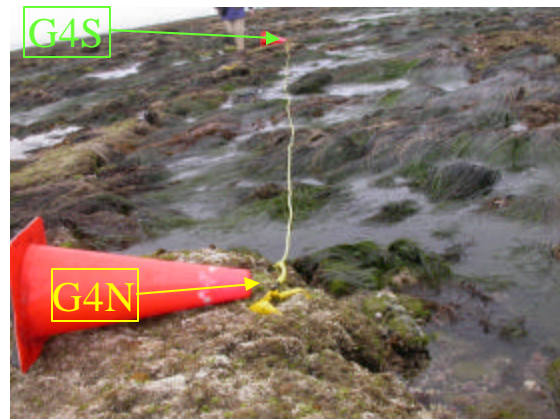
Taken in 2/06. Cone on bolt.



Taken in 2/06 Photo at 90°. Yellow tape on bolt.



Taken in 2/06. Photo at 90°. Yellow tape on bolt.



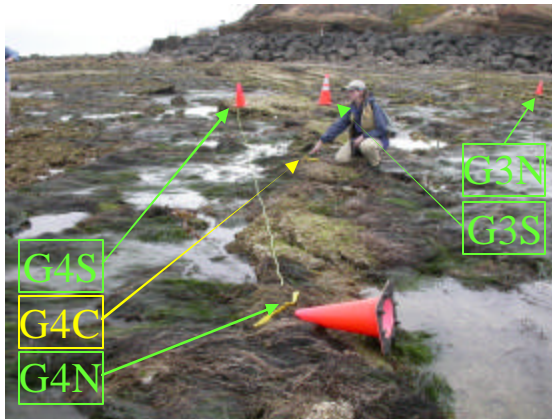
Taken in 2/06. Yellow tape on bolt.

G4C (005C)

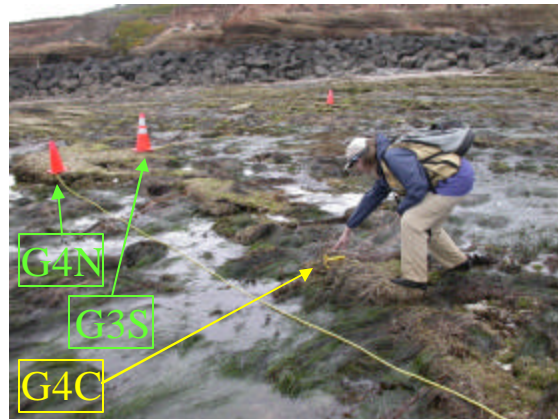
Target	Surfgrass
Type	Transect
Bolts	2 of 3, line
Coordinates	32.665768°N 117.244475°W
Height	29.00 in.

Description: Center bolt not in line with north and south, it is about 2 feet east of the line. A tall stainless bolt on a small mesa, higher than the rest of the transect.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	005N	5.03	160



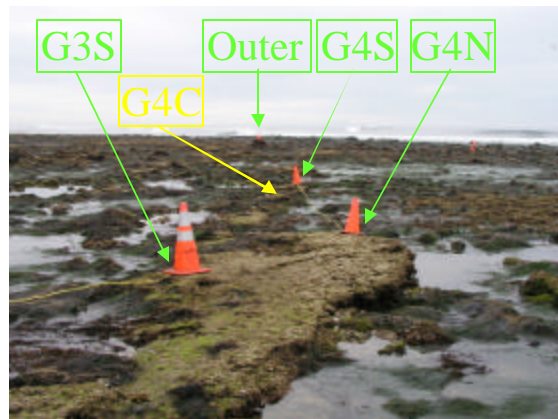
Taken in 2/06. Yellow tape on bolt and Debi pointing.



Taken in 2/06. Yellow tape on bolt and Debi pointing.



Taken in 2/06. Yellow tape on bolt and Debi pointing.



Taken in 2/06. Yellow tape on bolt.

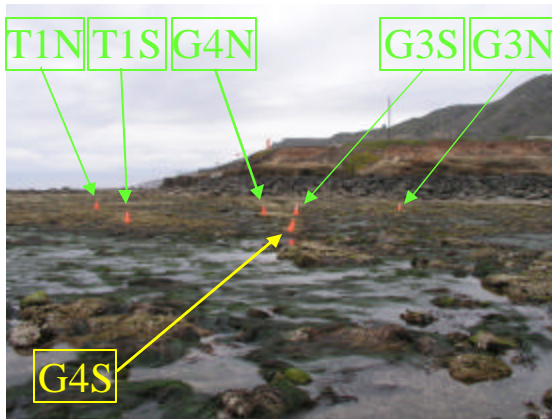
G4S (005S)

Target	Surfgrass
Type	Transect
Bolts	3 of 3, line
Coordinates	32.665733°N 117.244476°W
Height	26.75

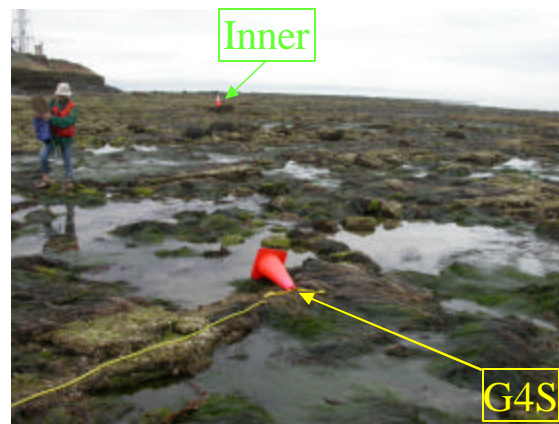
Description: From the center bolt to the south bolt, the transect goes up on a higher mesa. The southern bolt is along the ledge, not as high as north but still above the rest of the transect. Medium stainless bolt.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1N	001N	16.92	140
T1C	001C	12.25	130
T1S	001S	7.88	120
G3N	007N	20.22	200
G3S	007S	12.03	185

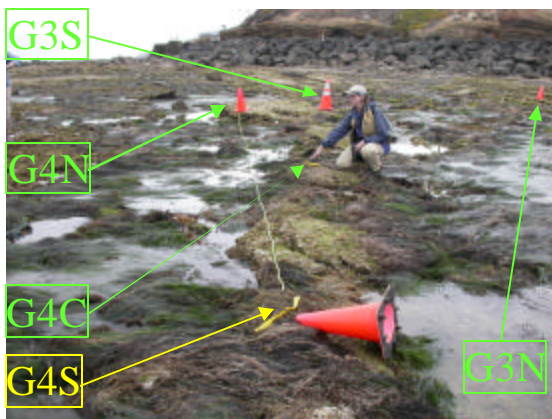
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4N	005N	10.07	160
K5N	002N	18.80	50
Outmk	Outmk	36.60	340



Taken in 2/06. Cone on bolt.



Taken in 2/06. Yellow tape on bolt.



Taken in 2/06. Yellow tape on bolt.



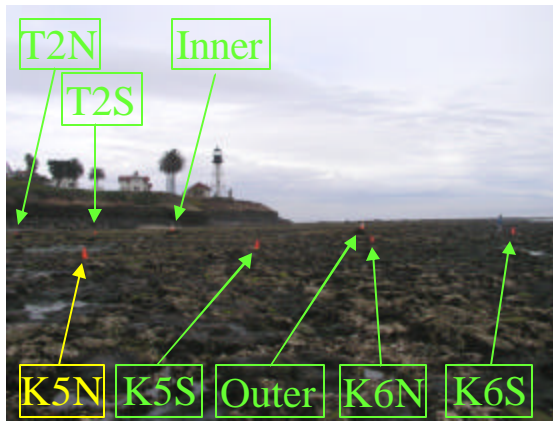
Taken in 2/06. Yellow tape on bolt.

K5N (002N)

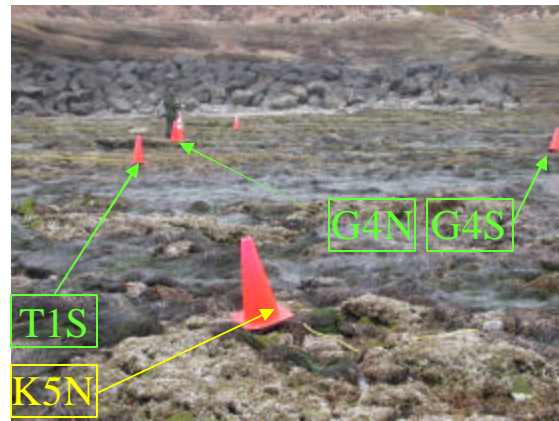
Target	Boa Kelp
Type	Transect
Bolts	1 of 3, line
Coordinates	32.665747°N 117.244657°W
Height	26.75 in.

Description: Medium stainless bolt. In 2006 was under a little blob of surfgrass.

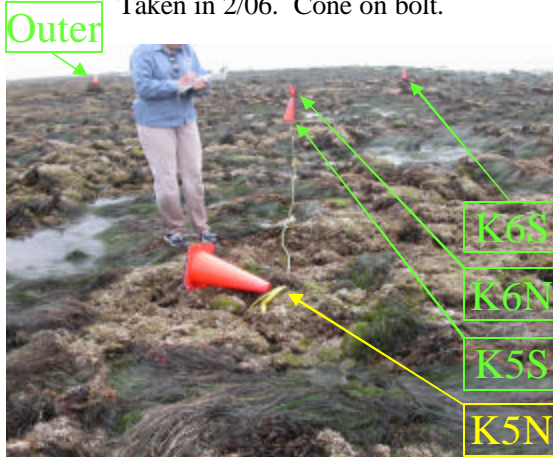
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
T1N	001N	22.60	180
T1S	001S	15.90	200
G4S	005S	18.80	230
K5C	002C	4.54	150
K5S	002S	9.53	330
K6N	004N	19.20	360
Outmk	Outmk	33.35	360



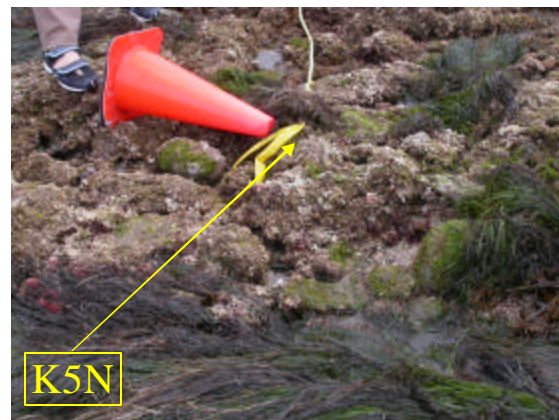
Taken in 2/06. Cone on bolt.



Taken in 2/06. Cone on bolt.



Taken in 2/06.



Taken in 2/06. Yellow tape on bolt.

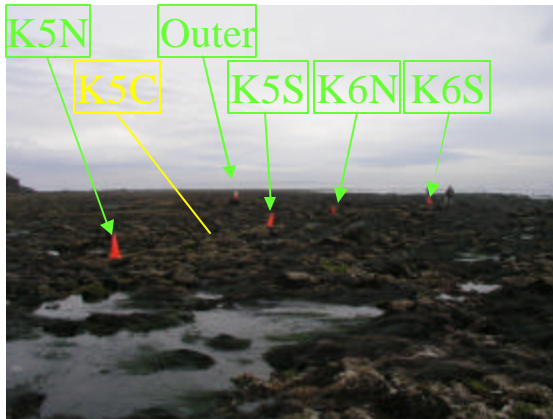
Last Update: Jun-06

K5C (002C)

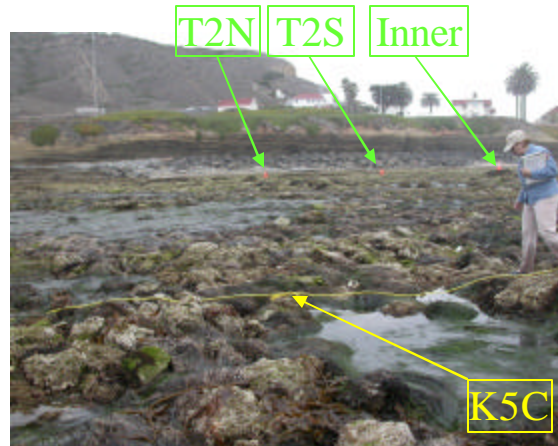
Target	Boa Kelp
Type	Transect
Bolts	2 of 3, line
Coordinates	32.665701°N 117.244652°W
Height	No Data

Description: Center bolt is in line with the rest of the transect. A medium length copper bolt on a little peak (not in a pool).

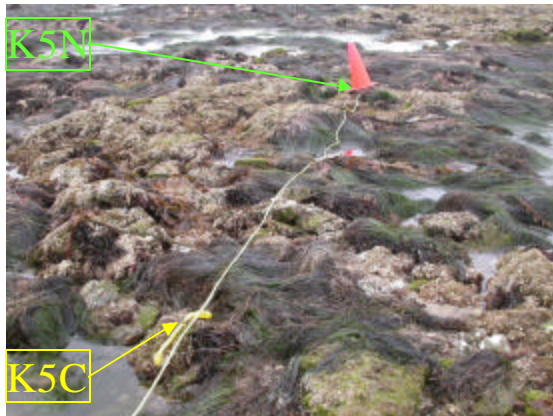
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
K5N	002N	4.54	150



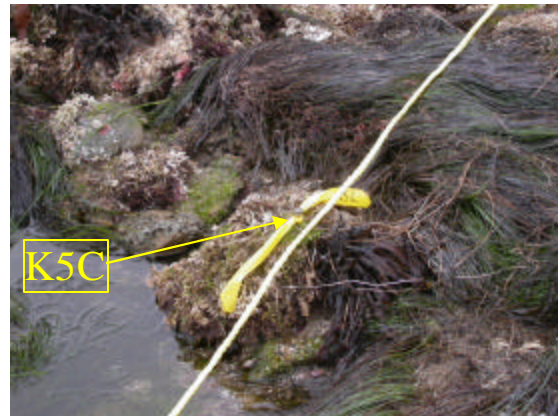
Taken in 2/06. Center bolt hard to see, but the transect is well marked.



Taken in 2/06. Bolt marked with yellow tape.



Taken in 2/06. Bolt marked with yellow tape.



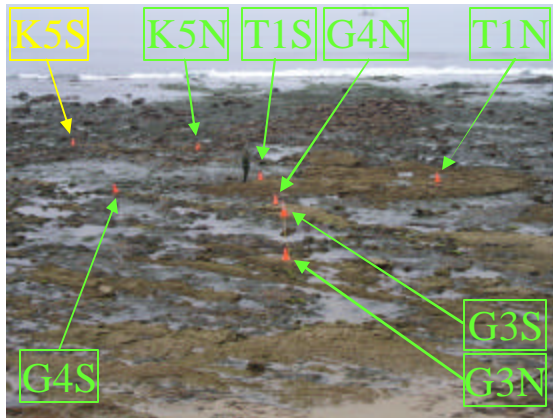
Taken in 2/06. Bolt marked with yellow tape.

K5S (002S)

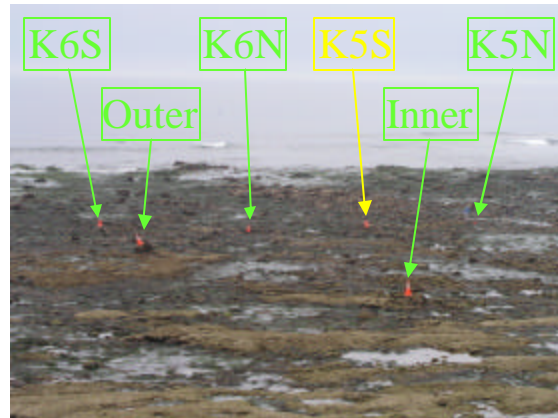
Target	Boa Kelp
Type	Transect
Bolts	3 of 3, line
Coordinates	32.665657°N 117.244646°W
Height	24.75 in.

Description: Transect along boulders and pools. A medium stainless bolt at the end of a distinctive, flat, very small boulder.

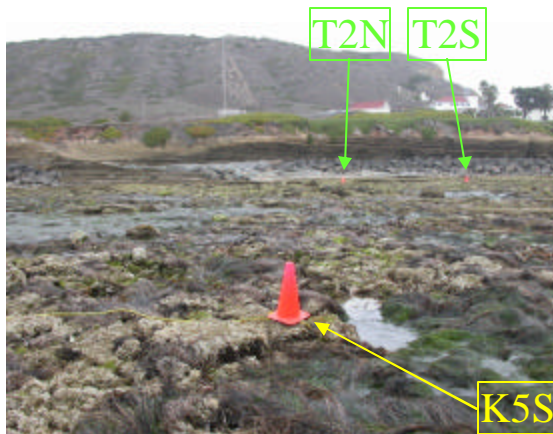
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
K5N	002N	9.53	150
K6N	004N	7.80	340
K6S	004S	19.85	45
Outmk	Outmk	24.70	300



Taken in 2/06, taken from cliff above. Cone on bolt.



Taken in 2/06, taken from cliff above. Cone on bolt..



Taken in 2/06. Cone on bolt.



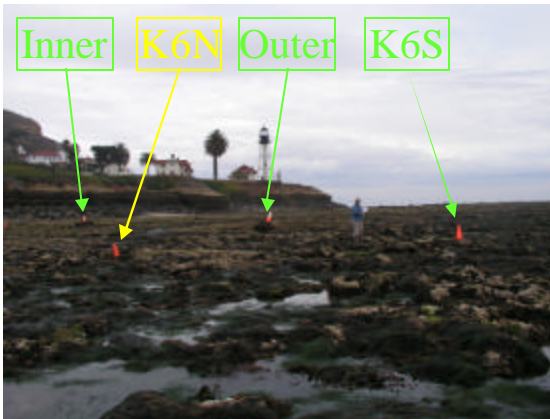
Taken in 2/06. Yellow tape on bolt.

K6N (004N)

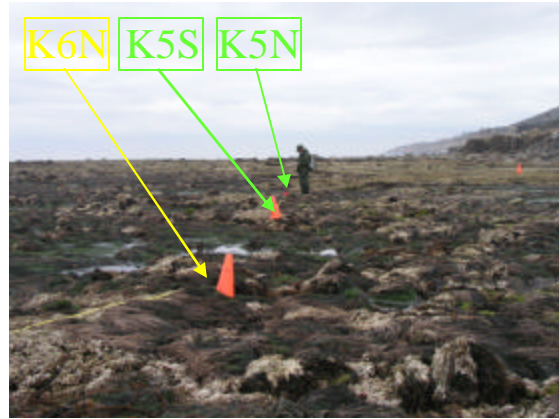
Target	Boa Kelp
Type	Transect
Bolts	1 of 3, line
Coordinates	32.665567°N 117.244624°W
Height	4.73 in.

Description: Bolt should be replaced since it gets buried. Bolt is in a pool that fills with sand. Off the edge of a mesa. A medium stainless bolt. There used to be another bolt beyond this one that made the transect over 12m long. The erroneous bolt was removed and this transect should be about 10.8 m long.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
K5N	002N	19.20	180
K5S	002S	7.80	160
K6C	004C	3.17	10
K6S	004S	10.80	350
Outmk	Outmk	16.55	340



Taken in 2/06.



Taken in 2/06. Cone on bolt.



Taken in 2/06. Orange tape on bolt.



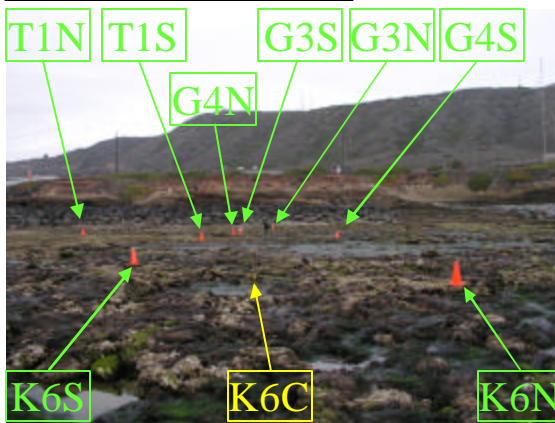
Taken in 2/06. This was when we found it under a rock and a few inches of sand.

K6C (004C)

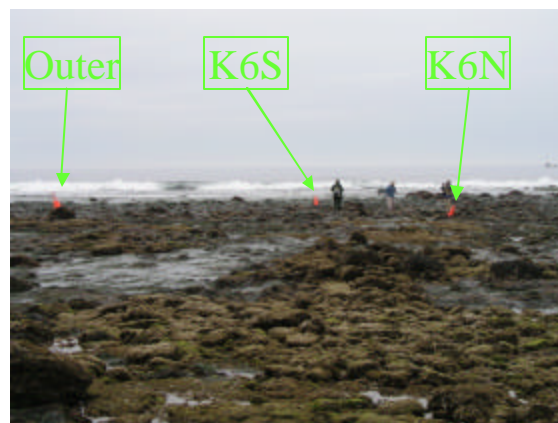
Target	Boa Kelp
Type	Transect
Bolts	2 of 3, line
Coordinates	32.665526°N 117.244641°W
Height	4.23 in.

Description: A medium stainless bolt in line with the transect. On a mesa, not in a pool.

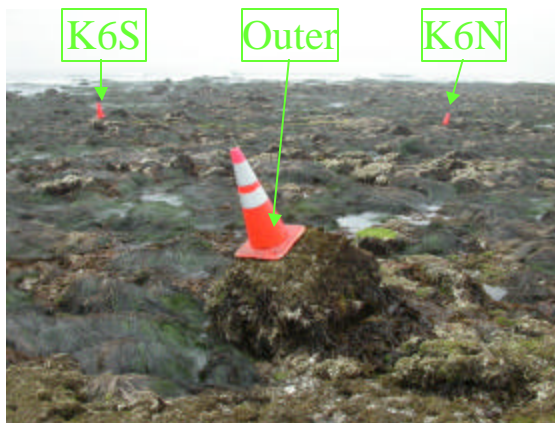
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
K6N	004N	3.17	190
K6S	004S	7.65	360



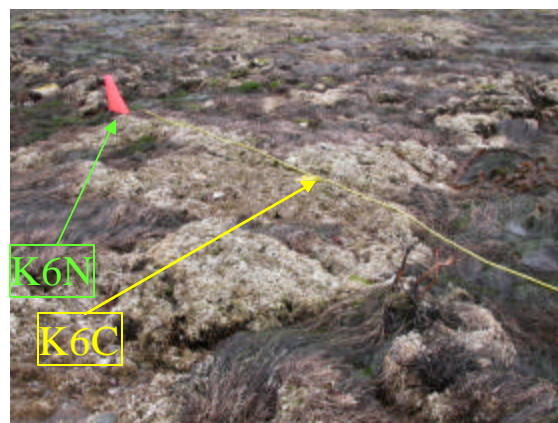
Taken in 2/06. Yellow tape on bolt.



Taken in 2/06. The center bolt is not marked.



Taken in 2/06. The center bolt is not marked.



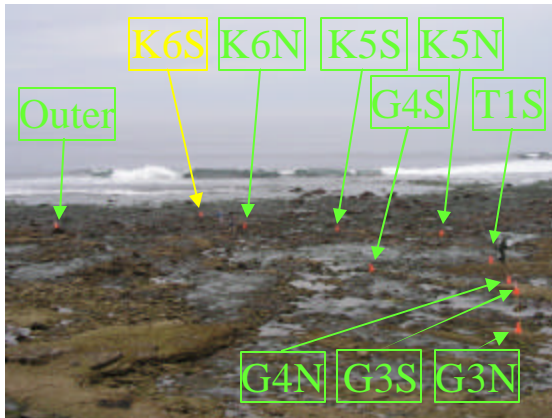
Taken in 2/06. Bolt marked with yellow tape.

K6S (004S)

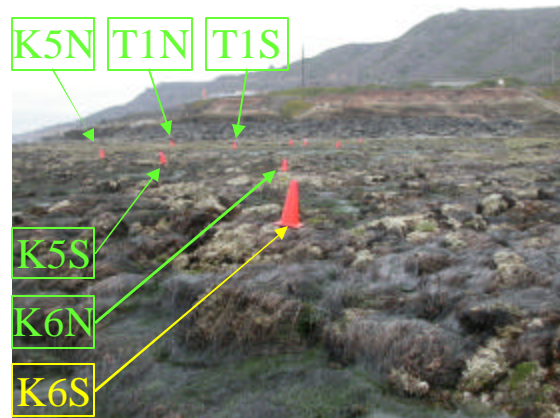
Target	Boa Kelp
Type	Transect
Bolts	3 of 3, line
Coordinates	32.665481°N 117.244660°W
Height	1.23 in.

Description: Transect is a little bit long (10.8m). On a small boulder, bigger than those around it. Considerably above the rest of the transect. A medium stainless bolt. In 2006, this was bolt was in grass.

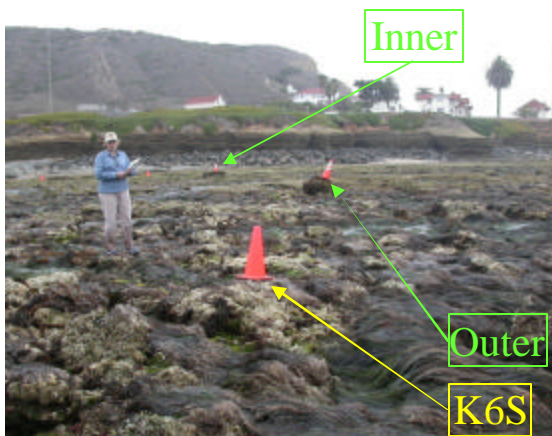
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
K5S	002S	19.85	225
K6N	004N	10.80	170
K6C	004C	7.65	192
Outmk	Outmk	16.84	225



Taken in 2/06, taken from cliff above. Cone on bolt.



Taken in 2/06. Cone on bolt.



Taken in 2/06. Orange cone over bolt.



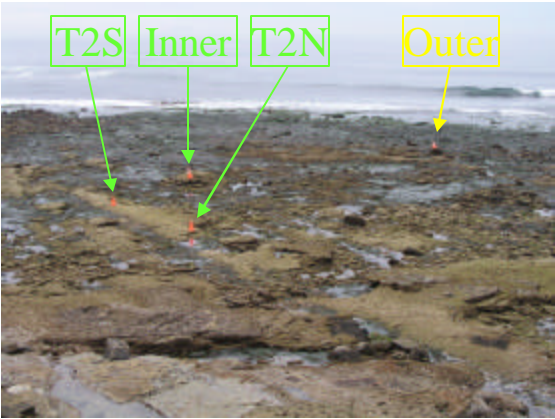
Taken in 2/06. Yellow tape on bolt.

Outer Marker

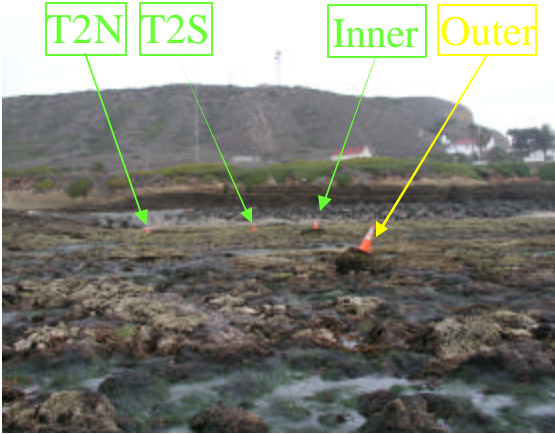
Target	None
Type	Reference Mark
Bolts	1
Coordinates	
Height	

Description: Small hexagonal copper bolt on only boulder in area.
Bolt not on very top but south of top.

Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
G4S	005S	36.60	160
K5N	002N	33.35	180
K5S	002S	24.70	120
K6N	004N	16.55	160
K6S	004S	16.84	45
Inmk	Inmk	26.30	225



Taken in 2/06, taken from cliff above. Cone over bolt.



Taken in 2/06. Cone over bolt.



Taken in 2/06. Cone over bolt.



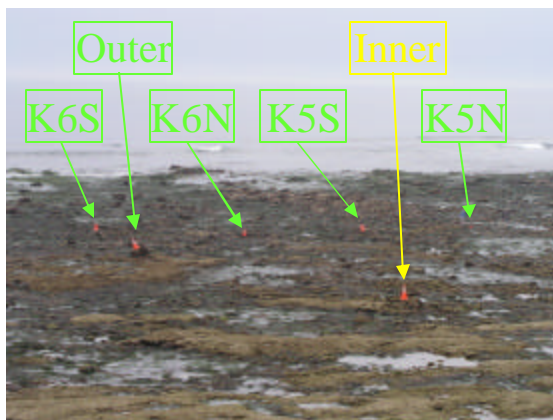
Taken in 2/06. Debi pointing to bolt.

Inner Marker

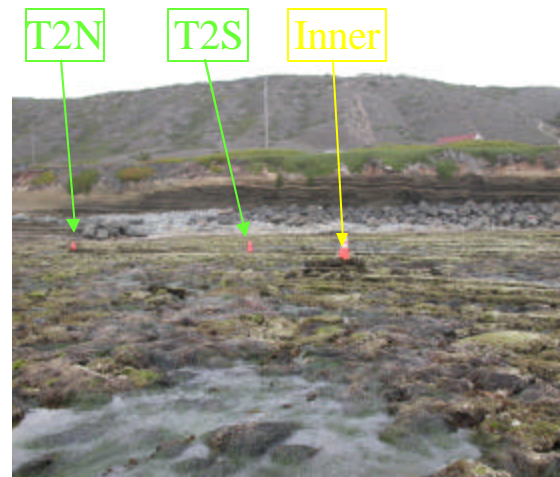
Target	None
Type	Reference Mark
Bolts	1
Coordinates	
Height	

Description: Small hexagonal and worn out copper bolt on flat boulder (approximately star-shaped) with large mussel on it (in 2006).

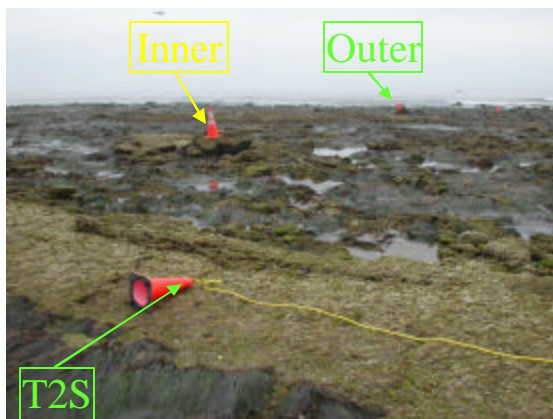
Distance from:			
Plot	Site	Dist. (m)	Dir. (°)
Po1	269N	49.10	240
Po2	269S	54.50	250
T2N	008N	19.05	200
T2C	008C	14.74	200
T2S	008S	10.95	225
Outmk	Outmk	26.30	45



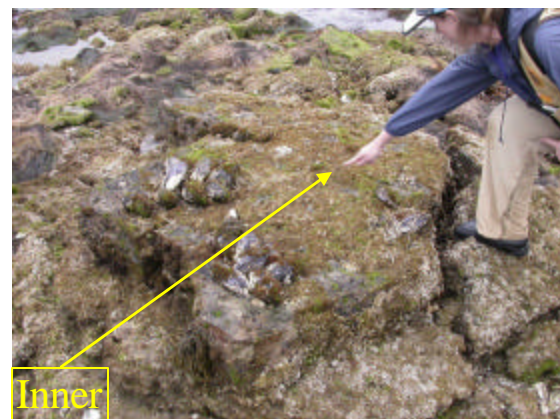
Taken in 2/06, taken from cliff above. Cone on bolt.



Taken in 2/06. Cone on bolt.



Taken in 2/06. Cone on bolt.



Taken in 2/06. Debi pointing to bolt.

Appendix D: Sample Logsheets

Cabrillo National Monument Rocky Intertidal Monitoring Program
Daily Field Log—Complete one per sampling day (includes all three zones)

Date: _____ Time: _____ to _____ Low Tide: _____ (ft) at _____ (time)

Activities Documentation

Participants (recorder 1st):

Work Report:

Plot marker loss/repair notes:

Bird/Visitor Census Done? (Y/N): _____ Site Log Done? (Y/N): _____

Environmental Conditions

Weather Conditions:

Weather and Sea Conditions (affecting quality of sampling)

Swell/Surge: _____ Wind: _____ Rain: _____ Recent Rain: _____ Water Temp (°C): _____
(Fill in all blanks: ---- =no data; 0=none; L=low; M=Med; H=High; or actual value)

Observations

Physical observations:

Biological observations:

Non-Human mammal notes (if any, include number and location; record 0 if none).

Dogs: _____	California sea lions: _____	Harbor seals: _____
Sea otters: _____	Elephant seals: _____	Other: _____

Cabrillo National Monument Rocky Intertidal Monitoring Program
Seasonal Observations for a Single Zone—To be filled out one time per season for each Zone

Zone: CAB _____ **Date:** _____

Recorders/Observers: _____

(Fill in all blanks: ---- =no data; 0=none; L=low; M=Med; H=High)

Substratum Changes (sediment=sand, gravel, cobble)(magnitude at site)

Sediment Level: _____ Scour: _____ Rock Movement: _____

Debris and Pollutants (magnitude at site):

Plant Wrack: _____ Driftwood: _____ Shells: _____ Dead Animals: _____ Trash: _____ Oil/Tar: _____

Notes on physical conditions:

Notes on biological conditions:

Cabrillo National Monument Site-Wide Species Conditions (Site Recon)

To be filled out one time per season for each Zone

Zone: CAB _____ Date: _____ Recorder(s): _____

<u>Species/Taxon</u>	<u>Typical Habitat</u>	<u>Abundance</u>	<u>Fertility</u>	<u>Bleached</u>	<u>Damaged</u>	<u>Recruitment</u>	<u>Notes</u>
		----=no data 0=Absent R=Rare U=Uncommon P=Present C=Common A=Abundant	----=no data 0=Not Fertile L=Low Level M=Med Level H=High Level	----=no data ✓=Typical (healthy) L=Low Level M=Med Level H=High Level	----=no data ✓=Typical (healthy) L=Low Level M=Med Level H=High Level	----=no data 0=No Recruitment L=Low Level M=Med Level H=High Level	
FILL IN COMPLETELY NO INTERMEDIATE CATEGORIES	H=High M=Mid L=Low						
<i>Anthopleura elegantissima/sola</i>	ML						
<i>Caulacanthus ustulatus</i>	HM						
<i>Chondrocanthus canaliculatus</i>	M						
<i>Chthamalus spp./B. glandula</i>	HM						
<i>Cladophora columbiana</i>	ML						
<i>Egorgia menziesii</i>	L						
<i>Eisenia arborea</i>	L						
<i>Enderachne/Petalonia</i>	HM						
<i>Endocladia muricata</i>	HM						
<i>Fucus gardneri</i>	HM						
<i>Halidrys dioica/Cystoseira spp.</i>	L						
<i>Haliotis cracherodii</i>	L						
<i>Hesperophycus californicus</i>	H						
<i>Ligia occidentalis</i>	H						
<i>Littorina spp.</i>	H						
<i>Lottia gigantea</i>	HM						
<i>Mastocarpus papillatus</i>	HM						
<i>Mazzaella affinis</i>	M						
<i>Mazzaella spp. (=Iridaea spp.)</i>	ML						
<i>Mexacanthina lugubris</i>	H						
<i>Mytilus californianus</i>	ML						
<i>Pelvetiopsis limitata</i>	H						
<i>Phragmatopoma californica</i>	ML						
<i>Phyllospadix scouleri/torreyi</i>	L						
<i>Pisaster ochraceus</i>	L						
<i>Pollicipes polymerus</i>	HM						
<i>Porphyra sp.</i>	HM						
<i>Postelsia palmaeformis</i>	L						
<i>Sargassum muticum</i>	L						
<i>Scytosiphon spp.</i>	HM						
<i>Silvetia compressa</i>	M						
<i>Strongylocentrotus purpuratus</i>	L						
Tar							
<i>Tegula spp.</i>	L						
<i>Tetraclita reubescens</i>	M						
<i>Ulva/Enteromorpha</i>	HML						

Cabrillo National Monument Owl Limpet Data Sheet

Zone: _____ Date: _____ Time (starting): _____

Plot Size: 1 m radius

Full name of all participants on this sheet (also initials for each plot):

Plot# L _____ /Site#: _____				Plot# L _____ /Site#: _____				Plot# L _____ /Site#: _____			
Recorder(s): _____				Recorder(s): _____				Recorder(s): _____			
Measurer(s): _____				Measurer(s): _____				Measurer(s): _____			
Size (mm)	#	Size (mm)	#	Size (mm)	#	Size (mm)	#	Size (mm)	#	Size (mm)	#
15		60		15		60		15		60	
16		61		16		61		16		61	
17		62		17		62		17		62	
18		63		18		63		18		63	
19		64		19		64		19		64	
20		65		20		65		20		65	
21		66		21		66		21		66	
22		67		22		67		22		67	
23		68		23		68		23		68	
24		69		24		69		24		69	
25		70		25		70		25		70	
26		71		26		71		26		71	
27		72		27		72		27		72	
28		73		28		73		28		73	
29		74		29		74		29		74	
30		75		30		75		30		75	
31		76		31		76		31		76	
32		77		32		77		32		77	
33		78		33		78		33		78	
34		79		34		79		34		79	
35		80		35		80		35		80	
36		81		36		81		36		81	
37		82		37		82		37		82	
38		83		38		83		38		83	
39		84		39		84		39		84	
40		85		40		85		40		85	
41		86		41		86		41		86	
42		87		42		87		42		87	
43		88		43		88		43		88	
44		89		44		89		44		89	
45		90		45		90		45		90	
46		91		46		91		46		91	
47		92		47		92		47		92	
48		93		48		93		48		93	
49		94		49		94		49		94	
50		95		50		95		50		95	
51		96		51		96		51		96	
52		97		52		97		52		97	
53		98		53		98		53		98	
54		99		54		99		54		99	
55		100		55		100		55		100	
56				56				56			
57				57				57			
58				58				58			
59		TOTAL		59		TOTAL		59		TOTAL	

Notes:

Cabrillo National Monument Rocky Intertidal Photo Log

Date:_____

Page _____ of _____

Area(s): CABR_____

Memory card #: _____

Photographer: _____

Camera: _____

Recorder: _____

[illegible]

Cabrillo National Monument Photoplot Data Sheet

Date Scored: _____ Season: _____ Zone: _____ Plot Type (circle): B / M / Pe / Po

	Plot 1	Plot 2	Plot 3	Plot 4	Plot 5	Plot 6
Date Photographed:						
Scored By:						
Rock						
Non-Coralline Crusts						
Crustose Corallines						
Other Red Algae (OR)						
Articulated Corallines (AC)						
<i>Silvetia compressa</i> (SI)						
<i>Chthamalus</i> spp/ <i>Balanus glandula</i> (CB)						
<i>Tetraclita rubescens</i>						
<i>Mytilus californianus</i>						
<i>Pollicipes polymerus</i>						
<i>Anthopleura elegantissima/sola</i>						
Chitons						
<i>Chondracanthus canaliculatus</i>						
<i>Cladophora columbiana</i>						
<i>Egregia menziesii</i>						
<i>Eisenia arborea</i>						
<i>Endarachne/Petalonia</i> (EP)						
<i>Endocladia muricata</i>						
<i>Fucus gardneri</i>						
<i>Halidrys dioica/Cystoseira</i> spp						
<i>Hesperophycus californicus</i>						
Limpets (LI)						
<i>Lottia gigantea</i>						
<i>Mastocarpus papillatus</i>						
<i>Mazzaella affinis</i>						
<i>Mexacanthina lugubris</i>						
Other Barnacle						
Other Brown Algae						
Other Green Algae						
Other Invertebrates						
Other Plants/Algae						
<i>Pelvetiopsis limitata</i>						
<i>Phragmatopoma californica</i>						
<i>Phyllospadix scouleri/torreyi</i>						
<i>Pisaster ochraceus</i>						
<i>Porphyra</i> spp						
Sand						
<i>Sargassum muticum</i>						
<i>Scytosiphon</i> spp						
Tar						
<i>Ulva</i> spp/ <i>Enteromorpha</i> spp						
Unidentified						
Unscorable - not specified						
drift algae						
off rock edge						
shadow						
shoe						
AC on <i>M. californianus</i>						
CB on <i>M. californianus</i>						
CB on <i>T. rubescens</i>						
EP on <i>M. californianus</i>						
EP on <i>T. rubescens</i>						
LI on <i>M. californianus</i>						
OR on <i>M. californianus</i>						
OR on <i>P. polymerus</i>						
OR on <i>T. rubescens</i>						
SI on <i>M. californianus</i>						
TE on <i>M. californianus</i>						

Cabrillo National Monument Point Intercept Transect Data Sheet

Date: _____ Zone: *CABR* _____ Plot #: _____ Site #: _____
 Recorder: _____ Reader: _____
 Cover (circle one): Turf/Grass/Kelp Read transects from N to S

cm	Code	cm	Code	cm	Code	cm	Code
0	START AT 10	250		500		750	
10		260		510		760	
20		270		520		770	
30		280		530		780	
40		290		540		790	
50		300		550		800	
60		310		560		810	
70		320		570		820	
80		330		580		830	
90		340		590		840	
100		350		600		850	
110		360		610		860	
120		370		620		870	
130		380		630		880	
140		390		640		890	
150		400		650		900	
160		410		660		910	
170		420		670		920	
180		430		680		930	
190		440		690		940	
200		450		700		950	
210		460		710		960	
220		470		720		970	
230		480		730		980	
240		490		740		990	
						1000	

For surfgrass plots, record the following (0,L,M,H=none, low, med, high), cover of:

Smithora (red algae):	Melobesia (coralline crust):
Bleached/brown grass:	Abraded: Flowers:

Taxa	Code
Anemones	A
Articulated Corallines	AC
Barnacles	B
Boa Kelp	BK
Colpomenia	CO
Crusts	Coralline CC
	Non-Coralline NC
Halidrys	H

Taxa	Code
Mussels	M
Other Algae	Brown OB
	Green OG
	Red OR
Other Invertebrates	OI
Other Plant	OP
Rock	R
Sand	SA

Taxa	Code
Sandcastle Worms	SW
Sargassum	S
Sea Palm	SP
Surfgrass Overstory	SG
Surfgrass Understory	SGU
Tar	T
Unidentified	UI

Cabrillo National Monument Abalone/Seastar Timed Search

(Look for all species listed)

Season: _____

Year: _____

Date: _____ Time started: _____ Time ended: _____

Zone: CABR _____ Recorder: _____

Description of area searched: _____

Species	# found	Notes (size, condition, location, etc.)
Black Abalone		
Green Abalone		
Pink Abalone		
Ochre Seastar		
Blue Seastar		
Bat Star		
Fragile Star		
Red Urchin		
Purple Urchin		

Comments: _____

Date: _____ Time started: _____ Time ended: _____

Zone: CABR _____ Recorder: _____

Description of area searched: _____

Species	# found	Notes (size, condition, location, etc.)
Black Abalone		
Green Abalone		
Pink Abalone		
Ochre Seastar		
Blue Seastar		
Bat Star		
Fragile Star		
Red Urchin		
Purple Urchin		

Comments: _____

Date: _____ Time started: _____ Time ended: _____

Zone: CABR _____ Recorder: _____

Description of area searched: _____

Species	# found	Notes (size, condition, location, etc.)
Black Abalone		
Green Abalone		
Pink Abalone		
Ochre Seastar		
Blue Seastar		
Bat Star		
Fragile Star		
Red Urchin		
Purple Urchin		

Comments: _____

Cabrillo National Monument Rocky Intertidal Overview Photo Log

Date: _____

Page _____ of _____

Area(s): CABR_____

Memory card #: _____

Photographer: _____

Camera: _____

Recorder: _____

Reminder: Photos taken north to south in a clockwise direction

[illegible]

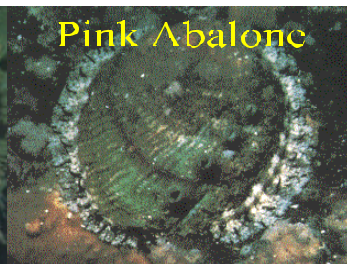
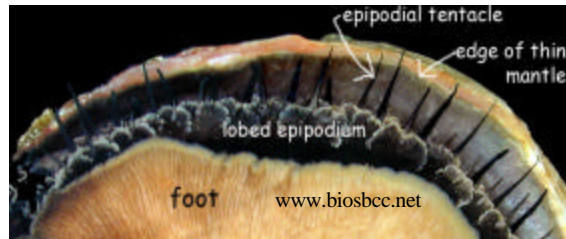
Appendix E: Pictorial Guide for Timed Searches

Timed Search Guide

Abalone

Although abalone species names are colors, do NOT use these colors to identify the species!
Measure the maximum shell length.

Species	Open Holes	Hole Shape	Shell Color	Tentacle color	Area between tentacles
Red	3-4	Oval, slightly raised	Dull brick red, often fouled	Black	Black or mottled with cream, lobbed and smooth
Pink	2-4	Round, highly raised	Dull green to reddish brown, wavy corrugations, often fouled	Black	Mottled black and white, lace-like
Black	5-9	Round, not raised	Dark blue to black, usually clean	Black	Black, lobbed and smooth
Green	5-7	Small, round, slightly raised	Olive green to reddish brown, flat-topped ribs parallel to holes	Olive Green	Mottled cream and brown or greenish, lace-like



Urchins

Measure the diameter of the test (the body underneath the spines)

Species: Purple Urchin

Scientific Name: *Strongylocentrotus purpuratus*

General Description: Adult body usually smaller than red urchin, spines smaller and blunter than red, spines usually purple with a little variability in color (whitish green when small).

Diagnostic: Tube feet are white or purple, spines are blunter.

Species: Red Urchin

Scientific Name: *Strongylocentrotus franciscanus*

General Description: Can grow much larger than purple, spines pointier and dark red or reddish brown. Can seem dark purple.

Diagnostic: Tube feet are dark, usually red, spines are sharper, very big individuals are likely to be reds.



Timed Search Guide

INSTRUCTIONS

- Search each zone for 30 person minutes (i.e. 30 minutes for 1 person, 15 for 2 people, 10 for 3 people).
- Focus your search on abalone and seastars.
 - Look in lower intertidal, at the bases of boulders, under rocks
- Look for all species on logsheet, but not at the expense of abalone and seastars.
 - For urchins, it is OK to approximate their size (e.g. 4 individuals less than 2cm, 3 individuals approx. 5cm, etc.). Do not waste time measuring the m.
 - Do NOT record brittle stars.
- Record the number and size of all individuals found (see each species group for details). Also note the habitat type and other observations, if possible.
- If you see something cool (e.g. nudibranchs), you can note it on the sheet, but do not waste too much time on these.
- ★ Make sure to place a ZERO next to all animals searched for but not found.
- Circle the approximate area searched on a map

Seastars

Measure from the end of the longest leg to the center of the disk.

Species: Fragile Star

Scientific Name: *Astrometis sertulifera*

General Description: NOT a brittle star, thinner legs with small sharpish spines that can be pretty colorful. Body usually mottled grayish brown

Diagnostic: Body is “soft” under the spines.

Species: Ochre Seastar

Scientific Name: *Pisaster ochraceus*

General Description: Little white bumps in concentrated patches, color can vary: orange, purple, red, brown.

Diagnostic: Hexagon of white bumps on center disk.

Species: Bat Star

Scientific Name: *Asterinaminiata*

General Description: Smaller star with webbing between the legs, can vary greatly in color and even have a mottled or spotted appearance.

Diagnostic: No discolored bumps like *Pisaster* and “webbed” legs

Species: Blue (or Knobby) Seastar

Scientific Name: *Pisaster giganteus*

General Description: Big, knobby, mostly evenly distributed white bumps, often ringed in white, blues, and/or purples.

Diagnostic: Knobby bumps with NO hexagon of white bumps on center disk.



Appendix F: Overview Photo Point Descriptions

MOV 01 Zone I
Southeast of plots #297, #298 - on cliffs
overlooking tidepools



MOV 02 Zone I
On rock with plot #294 – no bolt indicating MOV
– *don't stand on the rock – set up the tripod on the rock and stand below*



MOV 03 Zone I
Between plots #293 and 288



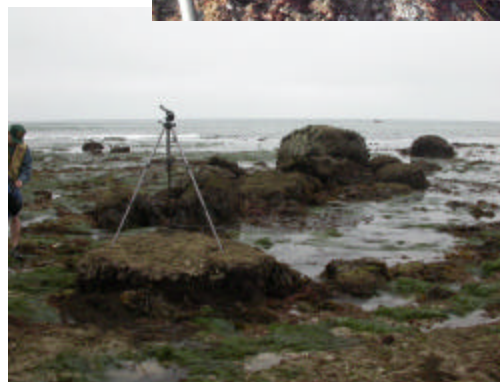
MOV 04 Zone I – near path down to tidepools
On cliffs, east of plot #278



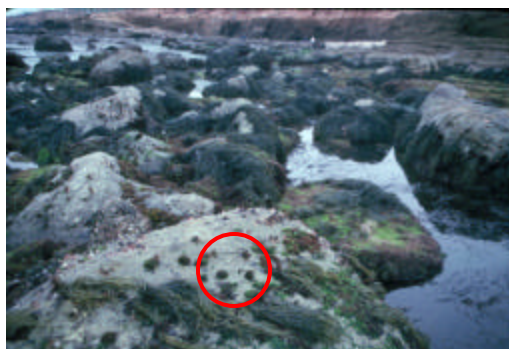
MOV 21 Zone II
Top of stack, north of plot #275
At border between Zones I and II,
north of where pipe comes out



MOV 22 Zone II
Southeast of plot #255 – on flat rock
East of clump of rocks drawn on tidepool map



MOV 23 Zone II
Southwest of plot #249



MOV 25 Zone II
South of plot #273



MOV 31 Zone III
north of road to USCG, up on cliff
On outcrop farthest north, not at base of road



MOV 32 Zone III
Northwest of plot #26
On table of rock extending up above most of the rocks
Tallest table near the row of boulders



MOV 33 Zone III, on boulders at end of peninsula
East of and near plots #14 and #18



MOV 34 Zone III, near to and south of inner marker
West of plot #269



Inner marker with mussels

